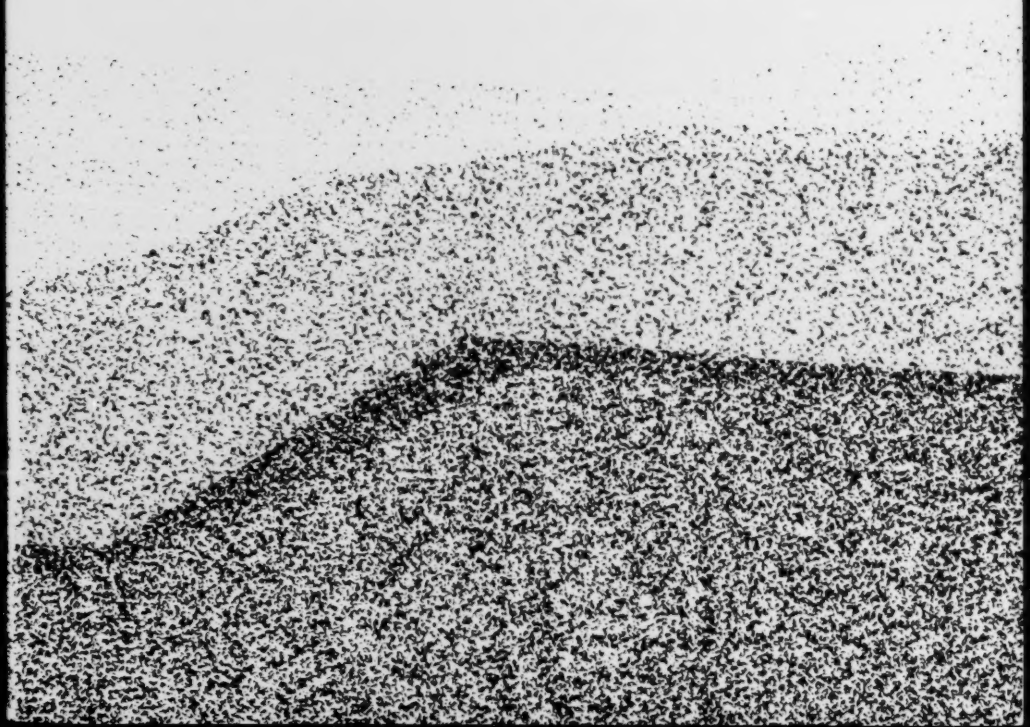
# THE KOREAN MINERAL MARKET: OPPORTUNITIES AND MARKETING STRATEGIES FOR CANADA

O. YUL KWON



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# THE KOREAN MINERAL MARKET: OPPORTUNITIES AND MARKETING STRATEGIES FOR CANADA

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TO MY LATE PARENTS AND BROTHERS

WHO MADE SACRIFICES FOR MY EDUCATION

# Preface

Canadian mineral producers face uncertain prospects in their traditional markets of the USA, Europe and Japan. The reasons - economic maturity, product downsizing, and material substitution - are well known. Therefore, the Canadian mineral industry must try to capture a substantial share of the growth markets which are largely contained in the newly industrialized countries (NICs). This study examines the market prospects for the Canadian mineral industry in one of the most dynamic NICs, the Republic of Korea (referred to throughout this study by the more familiar designation, "Korea").

Dr. Kwon outlines the remarkable economic growth enjoyed by Korea since the mid-1950s, particularly its increasing demand for energy resources and other minerals. He then proceeds to discuss the role of institutional and political factors which help shape Korean procurement practices. More specifically, he examines, in detail, its policies for acquiring uranium, coal and potash.

The study shows clearly that non-traditional factors play an important part in mineral procurement decisions. If Canadian mineral suppliers are to capture an increasing share of the Korean market and those of the NICs, they must adopt marketing strategies which recognize political and cultural factors, as well as the traditional economic ones.

The Centre for Resource Studies presents the results of scholarly research in non-specialist terms, and in a form readily accessible to policy makers and other interested groups. We are pleased to offer this study, in the hopes that it will provide useful insights drawn from past experience that can be applied in the process of developing effective mineral policies for Canada in the future.

Views expressed are those of the author, and do not necessarily represent the views of the Centre for Resource Studies or its sponsors.

David L. Anderson
Executive Director
Centre for Resource Studies

# Foreword

The Canadian mineral industry has experienced serious setbacks due to intense international competition and sluggish demand for minerals. The international mineral market is now a buyer's market, and the challenge facing the Canadian mineral industry is, in essence, one of marketing. Given static market conditions in the USA, the EEC, and Japan, Canada should strive to expand its markets in developing countries. In this study I will explore the market opportunities available to Canadian mineral producers in the Republic of Korea.

Two important economic factors make Korea an attractive market prospect for Canada: the untapped complementarity between the two economies; and Canada's substantial trade deficit with Korea. An expansion of Canadian mineral exports to Korea would benefit Canada's trade deficit situation and its sagging mineral industry.

Market research of Korean prospects for Canadian minerals was an interesting personal challenge. My involvement in mineral policy issues stems from my work as a senior tax policy officer with Finance Canada during the mid-1970s. As a Canadian citizen who was born and brought up in Korea, I am very much enthused about the prospect that I may contribute to the enhancement of the Canada Korea economic and business relations through this study.

I am grateful to numerous officials of the Korean government, Korean public institutions, mineral importing corporations, and Korean general trading companies who have generously spared their time for personal interviews and various forms of assistance. Without their cooperation, this study would not have been possible. Regretfully, space does not permit me to acknowledge each of these officials individually.

I owe a debt of gratitude to my colleague, Dr. Edward Weymes, himself a market researcher, for his careful review of the first draft and for his helpful comments and suggestions. The final draft document received meticulous scrutiny from David Anderson, Margot Wojciechowski, and anonymous referees. I gratefully acknowledge their comments and suggestions. I would like to thank my wife, Joanne Kwon, who acted as my research assistant and also typed the manuscript numerous times without a word of complaint. Finally, thanks are due to my daughter, Janice, and son, Brian, who carefully read the first draft and improved its readability. I am indeed grateful for all this assistance, but I am solely

responsible for the interpretations, conclusions, errors, and omissions in the study.

O. Yul Kwon
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# Summary

The purpose of this study is to develop a marketing strategy that would facilitate an expansion of Canadian mineral exports to the Korean market. To this end, the study analyzes Korea's anticipated demand for minerals, government policy pertinent to mineral procurements, and the mineral procurement procedures of Korean customers. As an ancient nation, Korea has a rich and unique cultural heritage, and its people are industrious, disciplined and well-educated. These traits have contributed to the Korean economic success which has been well documented.

Since 1962, economic activities in Korea have been geared to the achievement of targets set by consecutive five-year economic development plans. Accordingly, the economy is tightly controlled by the central government. The Korean economy recorded an annual growth rate of 8.3 percent during the period for 1962 to 1985, and such a sustained high rate of income expansion transformed the structure of the economy from an agrarian economy to an industrialized one. In 1986 Korean registered, for the first time, a trade surplus of U.S. $5.3 billion, and its trade surplus is expected to increase in the future. The Korean economy is expected to grow at 7.2 percent a year during the remaining part of the 1980s and at 6.8 percent during the 1990s. In view of the past realization of ambitious economic targets against numerous odds such as the lack of natural resources, the high population density, the wartime destruction, and the heavy defense expenditure, Korea appears to be capable of maintaining its high economic growth.

A country's demand for minerals depends on its economic growth and the extent of its industrialization. This has been the case for Japan and Korea, and it is highly likely that Korea's overall demand for minerals will increase in the future. Because of its scanty resource endowment, Korea's increasing demand for minerals has to be met with imports. In particular, it is expected that about one million tons of anthracite coal will be imported annually up to the year 2001. Korea's imports of coking coal will increase by 4.2 percent a year from 6.2 million tons in 1983 to 13.1 million tons in 2001. Increases in Korea's steam coal imports are estimated to be 14.4 percent a year from 3.4 million tons in 1983 to 38.0 million tons in 2001. Korea's uranium imports will also increase quite rapidly at about 9.3 percent a year during the period from 1986 to 2001, and annual uranium import requirements would amount to 4,500 tons by

2001. Finally, Korea imported about 0.5 million tons of potash in 1985, and its potash imports are expected to grow at a moderate rate.

The two main thrusts of Korea trade policy are import liberalization and diversification of import sources. Minerals are all freely imported with minimal tariffs. To ease Korea dependence on a few specific markets and to remedy imbalances in bilateral trades, Korea diversifies supply sources of minerals by country. Korea is also promoting overseas mineral development as an integral part of its long-term resource security plan. In doing so, the government has established target rates for mineral imports from Korea's overseas development projects.

The buying strategies of Korean customers for coal, uranium and potash are all different, but they share common procurement procedures. First, Korean customers are guided and controlled by the government in their mineral procurements. Second, procurement strategies are based on the competitiveness of the markets for final products. If companies in an industry compete with one another - as in cement and potash - their main concern is cost-minimization, and they obtain minerals through spot markets or short-term contracts. If captive demands exist for final products - as in coal and uranium - supply security of minerals is stressed, and long-term contracts are the predominant form of procurement. Long-term contracts entered into by the Korean customers generally allow the buyer to alter the actual purchases from the specified contract quantity within a certain margin. Prices are escalated on the basis of a certain standard or as a result of periodic negotiations to reflect changing market conditions. Third, import diversification by country and region is sought by all customers, except those for potash, in order to enhance supply security and to reduce mineral prices by fostering competition among suppliers. Fourth, Korea purchases minerals on the basis of FOB terms, whereby Korean importers control logistics. Fifth, Korean customers are anxious to get fair deals from suppliers - deals comparable to those provided fro Japanese counterparts. Sixth, non-price factors such as personal relationships and political pressures have an important bearing on Korean mineral purchases.

In view of Korea's growing demands for minerals Canada can supply, its cultural background and the political and business systems in which Korean customers operates, and the procurement procedures Korean customers follow in importing minerals, the following marketing strategies are suggested.

- A joint Canada-Korea consultative forum should be established in order to improve mutual understanding of market and supply potentials.

- The establishment of cordial personal relationships is a prerequisite for conducting business with Korea. Personal relationships are developed by on-going communications and contacts, written and direct.

- Canadian suppliers should capitalize on local Korean expatriates in exploring the Korean market.

- The Government of Canada should seek to establish a joint resource committee with Korea and should judiciously exert diplomatic pressure on Korea to expand its imports of Canadian minerals.

- Canada should make a major effort to induce Korea to participate in joint ventures with Canadian companies for mineral development.

- A Canadian mining company or a group of companies should investigate the possibility of a joint venture trading company with a Korean general trading company.

- Canada should investigate the desirability of an export association, particularly for coal. Until such an association is established, the Canadian Coal Association (or the Mining Association of Canada) should establish a market research unit in Korea as an interim alternative.

- Canada should be vigilant over her competitors, and pay continuous attention to their market promotion activities.

- Canadians have to demonstrate that they are prepared to learn and respect Korean customs and habits.

In general, since the international mineral market has become a buyer's market, Canada must undertake marketing programs if it is to realize the opportunities of an expanding Korean market. Canadians should be prepared to learn the Korean *modus operandi* and to do business in the Korean way. Complacency with the *status quo* is unlikely to provide a solution to the industry's weakness. We Canadians should re-examine our current practices with respect to mineral exports. We must assess and emulate what our successful competitors are doing, and formulate, with all our imagination and ingenuity, a coordinated marketing strategy.

# Resume

L'objectif de cette étude est de mettre au point une stratégie de commercialisation qui faciliterait l'expansion des exportations canadiennes de minéraux vers le marché coréen. Dans ce but, l'étude analyse quelle sera la demande prévisible de la Corée pour des minéraux, ainsi que la politique gouvernementale coréenne en ce qui concerne l'obtention de minéraux et les procédures d'obtention de minéraux des clients coréens. La Corée est une vieille nation au patrimoine culturel riche et unique, et les coréens sont très travailleurs, disciplinés et bien instruits. Ces traits ont contribué à la réussite économique coréenne que nous avons observée.

Depuis 1962, les activités économiques de la Corée ont eu pour objectif la réalisation des objectifs établis par des plans économiques quinquénaux consécutifs. C'est pourquoi le gouvernement central dirige de très près l'économie. L'économie coréenne a enregistré un taux de croissance annuel de 8.3 pour cent entre 1962 et 1985 et ce taux élevé et constant d'augmentation des revenus a transformé la structure de l'économie qui d'agraire est devenue industrialisée. En 1986 la Corée a enregistré pour la première fois un excédent commercial de 5.3 milliards de dollars US et on s'attend à ce que son excédent commercial continue d'augmenter. On s'attend à ce que le taux de croissance de l'économie coréenne soit de 7.2 pour cent dans le restant d'ici la fin des années quatre-vingt et de 6.8 pour cent dans les années quatre-vingt-dix. Compte tenu du fait que la Corée est arrivée par le passé à réaliser d'ambitie objectifs économiques malgré de nombreux obstacles tels que le manque de ressources naturelles, la haute densité de la population, la destruction causée par la guerre et les lourdes dépenses de défense nationale, on estime que ce pays sera capable de maintenir sa grande croissance économique.

La demande d'un pays pour des minéraux dépend de sa croissance économique et de son degré d'industrialisation. Ce fut le cas pour le Japon et la Corée, et il est hautement probable que la demande globale de la Corée pour des minéraux augmente à l'avenir. Parce qu'elle est pauvre en ressources, la Corée doit subvenir à cette demande accrue de minéraux en les important. On s'attend en particulier à ce qu'environ un million de tonnes d'anthracite soient importées annuellement jusqu'en l'an 2001. Les importations coréennes de charbon à coke augmenteront de 4.2 pour cent par an, passant de 6.2

millions de tonnes en 1983 à 13.1 millions de tonnes en 2001. Les augmentations des importations coréennes de charbon de chaudière sont évaluées à 14.4 pour cent par an, passant de 3.4 millions de tonnes en 1983 à 38.0 millions de tonnes en 2001. Les importations coréennes d'uranium augmenteront aussi très rapidement à raison de 9.3 pour cent par an environ entre 1986 et 2001, et les besoins en importations annuelles d'uranium s'élèveront à 4,500 tonnes d'ici 2001. Enfin, la Corée a importé environ 0.5 million de tonnes de potasse en 1985 et on s'attend à ce que ses importations de potasse croissent modérement.

La politique commerciale de la Corée est basée sur deux principes: la libéralisation des importations et la diversification des sources d'importation. Les minéraux sont tous importées librement avec des tarifs minimaux. Pour réduire sa dépendance d'un petit nombre de marchés spécifiques et pour remédier aux déséquilibres dans le commerce bilatéral, la Corée diversifie les sources de son approvisionnement en minéraux par pays. La Corée encourage aussi le développement de minéraux outre-mer, ce qui constitue une partie intégrante de son plan de sécurité des ressources à long terme. Ce faisant, le gouvernement a établi des taux cibles pour les importations de minéraux provenant des projets coréens de développement outre-mer.

Les stratégies d'achat des clients coréens pour le charbon, l'uranium et la potasse varient, mais elles ont en commun les procédures d'obtention. Premièrement, les clients coréens sont guidés et dirigés par le gouvernement dans leur obtention de minéraux. Deuxièmement, les stratégies d'obtention sont basées sur le fait que les marchés pour les produits finals se font concurrence. Si les compagnies dans une même industrie se font concurrence--ce qui est le cas pour le ciment et la potasse--leur préoccupation principale est la minimisation des coûts et elles obtiennent les minéraux sur des marchés au comptant ou par des contrats à court-terme. S'il existe une demande garantie pour des produits finals--ce qui est le cas pour le charbon et l'uranium--on souligne l'importance de la sécurité des sources de minéraux, et les contrats à long terme sont alors la forme principale d'obtention. Les contrats à long-terme signés par les clients coréens permettent généralement à l'acheteur de modifier à l'intérieur d'une certaine marge les achats réels par rapport à la quantité spécifiée par le contrat. On fait monter les prix selon une certaine norme ou selon des négociations périodiques qui reflètent les conditions changeantes du marché Troisièmement, tous les clients, sauf dans le domaine de la potasse, recherchent une diversification des importations par pays et par région, pour améliorer la sécurité de l'approvisionnement et pour réduire les prix des minéraux en encourageant les fournisseurs à se faire concurrence. Quatrièmement, la Corée achète les minéraux franc de port, ce qui permet aux

importateurs coréens de contrôler la logistique. Cinquièmement, les clients coréens tiennent beaucoup à ce qu'on les traite avec équité, comme le font par exemple leurs homologues japonais. Sixièmement, des facteurs n'ayant aucun rapport avec les prix, tels que les relations personnelles et les pressions gouvernementales, influencent considérablement les achats coréens de minéraux.

Compte tenu du fait que la Corée a des besoins croissants en minéraux que le Canada peut fournir et vu le milieu culturel, le système politique et la façon dont s'exerce le commerce en Corée, ainsique les procédures d'obtention que doiven suivne les clients coréens pour importer des minéraux, on suggère les stratégies de commercialisation suivantes.

- Un forum consultatif canado-coréen devrait être établi pour améliorer la compréhension mutuelle des potentialités du marché.

- Pour faire des affaires en Corée, il est indispensable d'établir au préalable des relations personnelles cordiales. Ces relations personnelles se créent grâce aux communications et aux contacts constants auvanir directs que par écrit.

- les fournisseurs canadiens devraient profiter au maximum du savoir des expatriés coréens installés au Canada quand ils examinerort le marché coréen.

- le gouvernement du Canada devrait établir un comité des ressources canado-coréen et devrait exercer une pression diplomatique judicieuse sur la Corée pour que celle-ci importe davantage de minéraux canadiens.

- le Canada devrait faire un effort substantiel pour induire la Corée à participer à des entreprises conjointes avec des compagnies canadiennes pour développer des minéraux.

- une compagnie minière canadienne ou un groupe de compagnies devrait investiguer la possibilité de créer une entreprise à risques partagés avec une societé commerciale générale coréenne.

- le Canada devrait déterminer s'il est désirable de créer une association d'exportation, en particulier pour le charbon. Tant qu'une telle association ne sera pas fondée, l'Association canadienne du charbon (ou l'Association minière du Canada) devrait établir une conrité d'étude de marché en Corée qui servirait de lien intérimaire.

- le Canada devrait surveiller ses concurrents et suivre de pres toutes les activités de promotion de leur marché.

- les Canadiens doivent démontrer qu'ils sont prêts a apprendre et à respecter les usages et les coutumes coréens.

En général, puisque le marché international des minéraux est devenu un marché de l'acheteur, le Canada doit entreprendre des programmes de commercialisation s'il veut profiter des possibilités qu'offre un marché coréen en pleine expansion. Les Canadiens devraient être prêts à se familiariser avec les façons de faire coréennes et à traiter des affaires à la coréenne. Se contenter du statu quo ne résoudra pas le problèmes de l'industrie. Nous autres Canadiens devrons réexaminer nos pratiques actuelles en ce qui concerne les exportations de minéraux. Nous devrons aussi évaluer les activités de ceux de nos concurrents qui ont réussi et s'en inspirir. Nous devrons avec toute notre imagination et toute notre ingéniosité, elaborer une stratégie de commercialisation coordonnée.

# 1. INTRODUCTION

## Background of the Present Study

Canada is a vast storehouse of mineral wealth, and since the 1920s has been a leading international supplier of minerals. The Canadian mineral industry has constituted a main engine generating the nation's economic growth and development,[1] although that role has been declining somewhat since the 1960s.[2] The Canadian mineral industry has experienced serious setbacks in the 1980s due to cyclical and structural economic forces, most notably intense international competition and changing demand conditions. How can Canada cope with these difficulties? That question provides the basic thrust of this study.

The Canadian mineral industry is highly export-oriented; depending on the measure chosen, it exports between 65 percent to 80 percent of its products. Clearly, the problems facing the Canadian mineral industry should be investigated from a global perspective. World demand for minerals has been undergoing structural and cyclical changes, especially since the 1973 oil crisis. Countries have been economizing on the use of mineral products, with ceramics and plastics gaining ground as substitutes for minerals. The traditional markets for Canadian minerals are the United States, the European Economic Community, and Japan. As the economies of these markets have matured, they have become oriented more toward services and high technology, and their consumption of industrial raw materials has levelled off. Numerous developing countries are struggling with liquidity crises arising from their external indebtedness. Most significant was the severe recession the world

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[1] Canada's crude mineral exports rose 20-fold in value between the late 1920s and the mid-1960s, and tripled from then until the mid-1970s. See Statistics Canada, *Exports: Merchandise Trade*, Cat. 65-202, and B.W. Wilkinson, *Trends in Canada's Mineral Trade*, (Kingston: Centre for Resource Studies, 1978).

[2] For instance, crude mineral exports accounted for 11.1 percent of Canadian merchandise exports in 1966, and that proportion gradually declined to 5.7 percent in 1985. See, Department of Regional Industrial Expansion, Canada, *Commodity Trade by Industrial Sector*, (Ottawa: Department of Regional Industrial Expansion, 1984).

economy experienced in the early 1980s. Because of this series of structural and cyclical economic forces, the growth of the world consumption of minerals has slowed significantly.[3] On the supply side, there has been a global proliferation of mineral producers over the last two decades. Mineral production in communist countries has grown at about twice the rate experienced in the Western world, and exports from these countries are competing for markets in the West.[4] Meanwhile, increased mineral production by developing countries has made them formidable competitors in world markets.[5] Such a proliferation of producers has greatly weakened the market power Canada had enjoyed in mineral markets: Canadian mineral producers are now true price-takers. The impact of sluggish demand for minerals and an abundance of mineral producers has been devastating to the industry. Scarcity of resources and fear over approaching depletion no longer preoccupy the world's mining companies. Rather, excess production, an abundance of deposits available for investment, intensified competition in mineral markets, depressed prices, and unprofitable mining operations have become the industry norm.

Under these circumstances, a close coordination among mineral-producing countries is imperative for an effective and comprehensive regulation of mineral markets. Various attempts have been made for such coordination, but to no avail. Such coordination is bound to be difficult to achieve because of the geographical spread of mineral producers, the large number of organizations and interests involved (including multinational corporations, state enterprises and traditional mining

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3 For instance, the 1977 consumption levels of major metals (copper, lead, zinc, nickel, and steel) were below the 1973 levels. For this, see Hendrick, K.C., "Policy Options: Corporate Realities", in *International Competition and the Canadian Mineral Industries*, by the Centre for Resource Studies (Kingston: Centre for Resource Studies, 1978).

4 Fargey, H.T., "Canadian Mineral Industry - World Competitor?: Metal Mining Perspective", *CIM Bulletin*, vol. 77, no. 861, January-February 1984, 41-43.

5 As of 1981 approximately 63 percent of total known, planned or ongoing capital investment for mining was going to developing countries. For more information, see P.J. Caragata, *National Resources and International Power: Canada's Mineral Policy Options*, (Kingston: Centre for Resource Studies, 1984), p. 45.

firms) and the unwillingness of some important producing countries to join the intergovernmental arrangements.[6] Coordination between communist and capitalist countries is particularly difficult because of ideological and political differences.

In light of such developments in the international mineral industry, what steps should the Canadian mineral industry take to ensure its own survival, development and expansion? Until recently, it appears, Canadians have not appreciated the international nature of the industry. The main concerns of Canadians and their governments have been domestic, not international.[7] From an international perspective, the central concerns about minerals are cost competitiveness and market access. Although these two areas are equally important in the challenge confronted by the Canadian mineral industry, so far Canada has emphasized the former. No matter how successful the Canadian industry is in maintaining cost-competitiveness, markets for Canadian minerals may not be found without an appropriate and aggressive strategy for market access. Ample opportunities exist in many countries. Yet only when these opportunities are seized and secured, will they provide outlets for Canadian minerals. Marketing, which includes identification and exploitation of market opportunities, is urgently needed for the survival and properity of the Canadian mineral industry.

Where then should Canada focus its efforts to develop markets for its minerals? As shown in table 1, 76.7 percent of Canada's crude mineral exports went to the USA, the EEC, and Japan in 1985. Given that these traditional markets accounted for such a high proportion of Canadian exports, one may ask if there is any point in considering the rest of the world for potential export outlets. The answer is yes; it is not merely a useful exercise, it is in fact an essential one. It is pertinent to note the changing trend in Canada's mineral exports. The three regions (the USA, the EEC, and Japan) accounted for 82.6 percent of Canada's mineral exports in 1966, but their share has been declining. This

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[6] Several commodities cartels or agreements have been tried, but none of them has made any headway in controlling production or new investment. For this, see P.J. Caragata, *op. cit.* pp. 17-37, and T.W. Walde, "Third World Mineral Development: Current Issues", *Columbia Journal of World Business*, vol. 19, no. 1, Spring 1984, pp. 27-34.

[7] See P.J. Caragata, *National Resources and International Power: Canada's Mineral Policy Options*, p. 74.

TABLE 1

VALUE OF CANADIAN EXPORTS OF CRUDE MINERALS
TO THE USA, THE EEC, AND JAPAN, 1966-85
(Canadian $ million, or % of total exports)

| | TOTAL CDN EXPORTS | EXPORTS TO USA | | EXPORTS TO EEC | | EXPORTS TO JAPAN | | EXPORTS TO THE THREE REGIONS |
|---|---|---|---|---|---|---|---|---|
| | | Value | % | Value | % | Value | % | % |
| 1966 | 1183 | 548 | 46.3 | 313 | 26.5 | 116 | 9.8 | 82.6 |
| 1967 | 1258 | 525 | 41.7 | 366 | 29.1 | 174 | 13.8 | 84.7 |
| 1968 | 1498 | 602 | 40.2 | 423 | 28.2 | 219 | 14.6 | 83.0 |
| 1969 | 1386 | 513 | 37.0 | 409 | 29.5 | 232 | 16.7 | 83.3 |
| 1970 | 1843 | 631 | 34.2 | 520 | 28.2 | 327 | 17.7 | 80.2 |
| 1971 | 1869 | 577 | 30.9 | 528 | 28.3 | 379 | 20.3 | 79.4 |
| 1972 | 1886 | 573 | 30.4 | 525 | 27.8 | 437 | 23.2 | 81.4 |
| 1973 | 2580 | 726 | 28.1 | 586 | 22.7 | 821 | 31.8 | 82.7 |
| 1974 | 3182 | 917 | 28.8 | 741 | 23.3 | 985 | 31.0 | 83.1 |
| 1975 | 3279 | 1003 | 30.6 | 861 | 26.3 | 940 | 28.7 | 85.5 |
| 1976 | 3941 | 1345 | 34.1 | 922 | 23.4 | 1029 | 26.1 | 83.6 |
| 1977 | 4335 | 1572 | 36.3 | 987 | 22.8 | 1043 | 24.1 | 83.1 |
| 1978 | 4105 | 1511 | 36.8 | 857 | 20.9 | 1044 | 25.4 | 83.1 |
| 1979 | 5757 | 2166 | 37.6 | 1252 | 21.7 | 1049 | 24.4 | 83.8 |
| 1980 | 6287 | 2017 | 32.1 | 1554 | 24.7 | 1495 | 23.8 | 80.6 |
| 1981 | 6605 | 2199 | 33.3 | 1565 | 23.7 | 1424 | 21.6 | 78.5 |
| 1982 | 5481 | 1161 | 30.3 | 1313 | 24.0 | 1450 | 26.5 | 80.7 |
| 1983 | 5357 | 1401 | 26.2 | 1301 | 24.3 | 1472 | 27.5 | 77.9 |
| 1984 | 7059 | 2040 | 28.9 | 1409 | 20.0 | 1943 | 27.5 | 76.4 |
| 1985 | 6748 | 1474 | 21.8 | 1508 | 22.3 | 2195 | 32.5 | 76.7 |

Source: Department of Regional Industrial Expansion, Commodity Trade by Industrial Sector, with the U.S., EEC, and Japan, (Ottawa: Dept. of Regional Industrial Expansion, 1986).

decrease in the proportion of Canada's mineral exports accounted for by the three regions should provide a warning that Canada cannot and should not rely on these traditional markets alone.

What is most relevent to Canada's task of market development is the trend of Canadian exports to Japan. In 1966, Canada's mineral sales to Japan amounted to a mere $116 million or 9.8 percent of total mineral exports; but in 1985, only 19 years later, sales to Japan amounted to $2.2 billion, accounting for 32.5 percent of total Canadian exports. That is a 19-fold increase over the 19-year period, or a 16.7 percent annual growth. Japan has no significant mineral resource endowment, yet its economy has obviously not suffered. For the period 1965-84, the

Japanese economy grew at an annual rate of 6.1 percent.[8] This would clearly indicate that Japan's demand for Canadian minerals has grown with its economy.

Although Japan's imports of Canadian minerals grew rapidly in the past, the growth rate of its imports will almost certainly decline in the future. As the Japanese economy matures, its consumption of industrial raw materials is bound to slacken; that may already be occurring. After the first oil crisis, the growth rate of Japan's overall mineral demand has declined considerably. For instance, in the ten-year period from 1966 to 1976, Japan's imports of Canadian minerals increased by 24.3 percent a year, whereas in the 1976-85 period, the level of Japan's imports increased annually by a more modest 8.8 percent (table 1).

At the same time, one observes an apparent policy of diversification of mineral suppliers by Canada's traditional markets.[9] This trend is contributing to the slowdown in demand for Canadian minerals by these markets. Hence, the Canadian mineral industry is facing at best generally static markets in the USA, the EEC, and Japan.

In view of this trend toward diversification of mineral supply sources and consequent levelling off of demand, an obvious corollary is that Canada should diversify its mineral export markets. Furthermore, if the Canadian mineral industry is to grow and prosper in the future, it is imperative that it strive to expand its markets in developing countries. This view is supported by the phenomenon of developing countries' increasing share in the total world mineral imports. As shown in table 2, only 6.2 percent of the total world mineral imports were accounted for by developing countries in 1966, while the ratio increased gradually to 13.6 percent in 1982.

Assuming that Canada should diversify its mineral export markets by expanding toward developing countries, one appropriate strategy involves selecting a developing country and concentrating a marketing analysis on that country as an exploratory investigation. Once Canada establishes a coordinated marketing strategy and a foothold in that market, it can put further resources in place to apply the strategy in other

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[8] Economic Planning Board, Korea, *Major Statistics of the Korean Economy, 1986*, (Seoul, Korea: Economic Planning Board, 1986), p. 287.

[9] Caragata, *National Resources and International Power: Canada's Mineral Policy Options*, pp. 47-56.

TABLE 2

THE SHARES OF REGIONS IN THE WORLD IMPORT VALUES OF MINERALS ORES AND METALS
(percent)

| | 1966 | 1970 | 1975 | 1980 | 1982 |
|---|---|---|---|---|---|
| Developed countries | 84.7 | 85.1 | 78.6 | 81.6 | 77.9 |
| Developing countries | 6.2 | 6.6 | 10.2 | 11.1 | 13.6 |
| Asia | 2.8 | 3.6 | 5.0 | 6.9 | 9.0 |
| Korea | 0.2 | 0.5 | 0.7 | 1.2 | 1.6 |

Source: U.N., Yearbook of International Commodity Statistics, 1984, (New York: U.N. 1984).

developing countries. Korea, one of the most dynamic developing economies, has been chosen for this exploratory investigation.[10]

Korea's economic success story is well documented. Its economy has grown at a rate of 8.3 percent a year (in real terms) over the past 23 years (1962-85). It is expected that in 20 years time, Korea will be as prosperous as Japan is today. The population of Korea, which is still growing quite steadily, reached 42 million in 1986. The Koreans are strongly influenced on a personal level by the Confucian ethic stressing hard work and encouraging education. War-induced poverty is a recent memory for many of them. Koreans tend to be industrious, well-educated, and determined. Korea's dynamism may well exceed that of most other nations. In view of its rapid growth and the Koreans' work ethic and dynamism, Korea appears capable of maintaining its strong economic performance well into the future.

Although Korea is ascending rapidly towards the rank of developed industrial countries, the economy is still far from mature, and the demand for minerals will increase with growth of its economy. Since Korea lacks a significant natural resource endowment, it must rely on outside sources to meet its increasing demand for minerals. Not only is Korea likely to rapidly increase its mineral imports, but it is also expected to invest

[10] South Korea's official name is the Republic of Korea. The shortened name "Korea" will henceforth be used in this study.

increasingly in overseas mineral industries. The fact that during the past two decades Japan has moved from an insignificant position in Canadian overseas mineral exports to number one status bodes well for the development of Canadian mineral sales in Korea. It is imperative that Canada seize this opportunity to develop the Korean market for minerals.

So far, mineral trade within the eastern Asian region has been negligible. But that appears to be changing as China, which is endowed with rich mineral resources, opens its doors to international trade. China will be one of Canada's most formidable competitors in the eastern Asian mineral market due to advantages such as cheap labour and close physical proximity. Unless Canada embarks on aggressive market development activities, the eastern Asian market, including Korea, might be pre-empted by China.

## Objective and Scope of the Study

Given this background, the study's primary objective is to develop a strategy that facilitates the entry of Canadian minerals into the Korean market. Any viable strategy for marketing in a foreign country must be based on relevant, accurate market information. Hence, the specific components of the study include the following: first, the study identifies and assesses the present and projected Korean market for Canadian minerals. A country's demand for minerals is a function of its economic development, which in turn derives from variables that includes the cultural background and work ethic of the population, resource endowments, political stability, and government economic policy. By analyzing these variables and linking them with the development experience of the Korean economy, the country's future development and accordingly its mineral market potential will be assessed.

Secondly, the study analyzes economic relations between Canada and Korea, evaluating the two economies' complementarity and possible interdependence. The extent of mineral trade between any two countries will be affected by how the overall bilateral trade, in turn, develops. Because bilateral trade depends upon the extent of complementarity between two economies, an analysis of the complementarity between the Canadian and Korean economies is required to understand the mineral trade potential.

Thirdly, the study examines Korean institutions, control organizations and government policies related to mineral trade. This entails

examination of any constraints to mineral trade, such as tariff and non-tariff barriers. Typically, government plays a critical role in the mineral trade of developing countries, including Korea, so an understanding of government mineral policy and the organizations involved in policy formulation and implementation is a crucial element in an assessment of this market.

Fourthly, the study analyzes decision-making and mineral procurement procedures in Korea at the business and end-user levels. Ultimately, it is companies that enter into contracts with foreign suppliers for mineral imports. Charateristics of business decision-making practice and government policy were determined by means of interviews with relevant business and government officials in Korea.

Finally, drawing on knowledge of government policies and mineral procurement procedures, this study suggests a set of strategies for the expansion of Canadian mineral exports to Korea. The strategy includes specific market promotion programs. It should be noted that the present study is concerned chiefly with international marketing as such rather than with policy. Hence, issues such as possible Canadian collaboration with trade competitors, for instance Australia, are beyond the scope of this study. Rather, the market promotion programs set forth are aimed at Canada alone, or at individual Canadian industries or companies acting alone.

The minerals Korea imports from abroad are diverse, and market conditions, procurement procedures, government policies, and institutions involved vary from commodity to commodity. It is certainly beyond the scope of this study to consider all of the minerals. Thus, it is limited to those minerals already traded between Canada and Korea in significant quantities and with good potential for growth, namely coal (anthracite, steam, and coking varieties), uranium and potash. Although the study limits itself to these minerals, conclusions are generally applicable to other Canadian minerals, as are strategy recommendations.

## Organization of the Study

The tasks outlined above will be undertaken in the following manner. Chapter 2 provides a broad overview of Korea, including its population, government, and economy. A brief description of the cultural heritage and character of Koreans is included. Recent political developments and government policies relevant to the study are also noted. Finally, de-

scription of some salient features of the Korean economy will help in the assessment of its development and projected demand for minerals.

Chapter 3 examines economic relations between Canada and Korea, leading to an evaluation of the two economies' complementarity. Suggestions are made regarding the rendering of that complementarity into actual trade, including of course mineral trade. Chapter 4 provides an examination of the demand for and supply of each of the five minerals chosen for the study. The sizes of present and future Korean markets for those minerals are estimated.

Chapter 5 opens with an overview of Korea's trade policy, including import restrictions and tariffs. The role of general trading companies in international trade is examined. This is followed by detailed analyses of relevant government policies, policy-making institutions, procurement procedures, and bargaining strategies for each of those five minerals.

Overseas resource development by resource-poor countries is an increasingly important means of securing resources, and develop-for-import projects have proliferated recently. In order to attract such foreign investment, resource-rich countries must understand the determinants of overseas resource development by foreign countries. With that in mind, Korea's overseas resource development is examined in chapter 6. The prospect of Korean joint ventures with the Canadian mining is addressed.

Finally, chapter 7 briefly reviews the major findings of the study. Then, in light of identified opportunities and mineral procurement policies and procedures, market promotion strategies and programs are recommended. They are expected to help Canada expand its mineral exports to Korea.

# 2. KOREA: POPULATION, GOVERNMENT AND THE ECONOMY

## Population

South Korea has a land area of 99,000 square kilometres (38,000 square miles), which corresponds in size to the island of Newfoundland. The land is mountainous, and only 22 percent arable.

Korea's population grew at an annual rate of more than two percent up to 1970. Since then, rising levels of education and income together with active family planning programs reduced the rate of population growth substantially. Even so, the population has been growing at a rate of about 1.45 percent a year since 1980, reaching 42 million in 1986.[1] This constitutes 420 inhabitants per square kilometre, making Korea one of the most densely populated countries in the world. The World Bank has projected that Korea's population will reach 50 million in the year 2000,[2] but at the current growth rate the population would exceed this level. The motivation of better economic opportunities has resulted in heavy rural-to-urban migration and has thus accelerated the rate of urbanization. The proportion of population living in urban areas rose from 32 percent in 1965 to 62 percent by 1983.[3] Migration to Seoul, the capital city, has been heavy and sustained. In 1985, Seoul had a population of 9.6 million, accounting for 23 percent of the total population.

Korea has a cultural heritage some 4,000 years old. The Korean people are homogeneous in terms of race, language and cultural tradition. The Korean written language, which was invented in the 15th century, is strictly phonetic, unlike Chinese.

Within Korean society, a strong and perhaps unique sense of a "group society" has been developed, surrounding the extended family and friends. This may be attributed to the influence of Confucianism,

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1 Economic Planning Board, Korea, *Major Statistics of The Korean Economy*, 1986, (Seoul, Korea: Economic Planning Board, 1986), p. 3.

2 World Bank, *World Development Report, 1985*, (Washington, D.C., The World Bank, 1985), p. 211.

3 *Ibid*, p. 217.

which stresses the principles of loyalty to friends and relatives. In a group society, emphasis is placed on belonging and responding to the group of people with whom one is intimately involved. Koreans find it natural to think and act as group members rather than independently. One feature of the group society phenomenon is that Koreans, although gregarious, tend to retain a few especially close friendships throughout a lifetime. Often these friendships originate in the bonds formed between classmates at school or university, people from the same home town, or colleagues in a company. There are some well-defined rules governing the obligations of friendship. Friends represent a kind of social insurance, as they help one another in times of hardship or trauma. Business opportunism seldom intrudes on such friendships.

Confucianism has been the most significant influence on the behavior and customs of the Korean people. Emphatic respect is accorded to the older members of the community, especially to the senior members of an individual's own family hierarchy. Also, Korea remains essentially a male-dominated society, even though many wives now share in the important decisions affecting home and family. Generally speaking, women give up work when they marry, dedicating their lives to homemaking for their husbands and children.

In the working environment, Koreans have a deep sense of loyalty to their companies or organizations. Because of the Confucian ethic stressing hard work, and because many people can remember living in war-stricken poverty, Koreans are diligent workers. The Confucian emphasis on loyalty to authority encourages Koreans to carry out the orders of their superiors without question. Companies tend to be rigidly structured and each employee has a particular position and associated status in the hierarchy.

Outside work, Koreans generally seek the company of people with similar social status and educational background. However, Korea has no formal class or caste system. The enthusiasm seen in Koreans' devotion to their work is matched by an enthusiasm for enjoyment.

Another great enthusiasm of the Korean people involves education, which has a special place in Korean life. School children and university students study long and hard. Parents willingly devote large portions of their finances to the education of their sons and daughters. Such sacrifices are made even among brothers and sisters. Given limited capacities for university education, such zeal for education is bound to develop fierce competition for university entrance. This quest for higher learning also helps to develop the Korean's propensity for hard work.

Another interesting facet of the influence of Confucius, himself a scholar and teacher, is the great respect accorded to professors and scholars. Some government departments and agencies have advisory bodies comprised of professors. Thus, academics exert considerable influence on government policy. The personal relationships between professors and their students are strong, developing into group relationships that continue long after graduation, so professors may also influence government policy or business decisions indirectly through their former students who become high-ranking civil servants or business officials.

In summary, as an ancient nation, Korea has a rich and unique cultural heritage. The Koreans are typically industrious, disciplined, and well-educated. It is their energy and industriousness that are contributing most to the Korean economic success, which will be examined shortly.

## Government

Korea was a colony of Japan from 1910 to 1945. In 1950 Korea was plunged into the Korean War, which left one million South Koreans dead and one quarter of the population as refugees. The country's main industrial base was completely destroyed. When the armistice was signed in 1953, Korea was heavily dependent on external economic assistance, mainly from the USA.

That grim period has had an impact on the recent political evolution of the country. Underlying Korean political development have been two sentiments which have helped create a nationalist fervor. One is fear of and hostility against North Korea, which has proclaimed its intention to reunite the peninsula under its terms - by force if necessary. The other is a feeling of intense rivalry with Japan. Today, while it is hardly a nation of equal industrial power, Korea is sometimes referred to as the "new Japan", implying the emulative nature of the Koreans.

The political scene was dominated by President Chung-Hee Park for 18 years. He came to power through a military coup in 1961 and held it until his assassination in 1979. Although there were some signs of political instability during his 18-year reign, President Park maintained political control and engineered economic successes which endeared him to the majority of the population.

Between December 1979 and March 1981, Korea had a transitional government headed by President Choi. During this period, Korea

experienced political turmoil. There was uncertainty as to who held real power. Strikes, student demonstrations, and political conflicts were prevalent across the country. The Korean economy registered a decrease of 5.2 percent in 1980, the first decline since 1962. The general public attributed the economic set-back to the political tumult and reacted with conviction that political stability was essential for economic progress.

In March, 1981, President Doo-Hwan Chun took office for a 7-year term. He occupies a supreme position under a new constitution similar to that of the Park government. He has power to take emergency measures, to declare martial law and to dissolve the National Assembly. The unicameral National Assembly has two-thirds of its members elected by direct electoral votes and one-third chosen by a representation system based on the proportion of votes each party receives the National Assembly election. The president is elected by the National Conference for Unification (electoral college). The 5000 or so members of the National Conference for Unification are elected by popular vote. Their only duty is, in effect, to elect the president. The constitution provides for the "free" establishment of political parties, but they can be dissolved by a constitution committee consisting of nine members appointed by the president. Consequently, virtually all political power is vested in the president.

Although there are nine provincial governments and four administered cities equivalent to provinces, they have little power and authority in either policy making or administration. Provincial governors and mayors are appointed, directly or indirectly, by the president.

President Chun has striven, generally with fair success, to maintain stability. While student-led public demonstrations have been erupting against the Chun regime, they are not too likely to cause prolonged instability. The general public is apprehensive of the political instability demonstrations might provoke. The public has seen that such instability can result in economic setbacks, and it appears that political stability will ultimately be maintained.

A question may arise concerning the national security of South Korea. There was once some fear of a U.S. withdrawal of its ground troops from South Korea. That has not materialized, and there are still 41,000 American military servicemen in Korea.[4] It cannot be assumed that the military balance is in favour of North Korea, in part because

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[4] *Ibid.*

South Korea had 41 million people compared to only 20 million in North Korea in 1984.[5] And South Korea's industrial strength is considerably greater. It is by no means certain that the North could count on Soviet or Chinese support in a military conflict, particularly if the initiative were taken by North Korea. It follows, therefore, that one can be optimistic about the continued security of South Korea.

## The Korean Economy

### Salient Features of the Korean Economy

Since 1962, economic activities in Korea have been geared to the achievement of targets set by five-year economic development plans. Accordingly, the economy is tightly controlled by the central government. Central planning, an integral part of the government's philosophy, is so pervasive that the concept of a "free market" economy is not operative in Korea. Nonetheless, the Korean economy is markedly different from the economies of socialist countries, in that profits are largely generated and appropriated by the private sector, as opposed to the state. This maintains the profit-motivation feature of a free market economy.

Another interesting feature of the Korean economy is that powerful conglomerates dominate much of the nation's industry and exports. The thirty largest conglomerates - including giants like Hyundai, Samsung, Daewoo, and Lucky Goldstar - account for 16 percent of the Korean gross national product.[6] Many of these conglomerates are run by self-made business patriarchs. Hence, management in Korea is authoritarian, not only because the employees are loyal to their companies under the Confucian influence, but also because giant conglomerates are individual proprietorships.

Because of their unhappy experience as a Japanese colony, their aspirations to emulate Japan, their memory of war-stricken poverty, their apprehension of another invasion by North Korea, and their Confucian ethic, the Koreans appear to possess an unusual degree of patriotic aspiration for national economic advancement. They see a link between

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5 Economic Planning Board, *Major Statistics of the Korean Economy*, p. 19.

6 *The Financial Post*, May 24, 1986, p. 4.

individual interests and national economic goals. This has undoubtedly been conducive to the formation of a close, cooperative, and mutually dependent relationship between the government and private business in the conduct of economic affairs. It may also help to explain the Korean economic system, an economy that depends in large measure on private enterprises while operating under government guidance.

The Korean economy also differs from a socialist economy in that the total government stake in the economy, in terms of allocation of resources, is quite small. The proportion of total resources employed by the Korean government appears to be smaller than in Canada, although an accurate comparison is impossible because of various differences in classifications and definitions. For instance, for the period 1975-84, the ratio of total government expenditures to GNP was on average about 27 percent in Korea, while it was 43 percent in Canada.[7] However, a relatively larger share of total investments is undertaken by government in Korea than in Canada. Public sector investment accounted for 18 percent of the total investment in Korea, compared to 13 percent in Canada, during the period 1980-84.[8]

Although the total resources at its disposal are not particularly large, the Korean government exercises controls over the economy and business through interventions. They include price and interest rate regulations, allocation of short-term domestic loans to commerce and industry (via commercial banks), allocation of foreign exchange allowances, investment approvals, and allocation of loans for investment. Although the scope and pervasiveness of government controls over business have been extremely high, they are gradually declining. In particular, the independence of the powerful conglomerates from government influence is growing yearly.

## Trade Associations

Given the pervasive controls of government over business, interest groups in the form of trade associations have developed in Korea. They

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7 Economic Planning Board, *Major Statistics of the Korean Economy*, p. 181 and Department of Finance, Canada, *Economic Review*, (Ottawa: Department of Finance), various issues.

8 *Ibid.*

are ubiquitous, representing almost every line of product or business, and they play an important role in the Korean economy. Typically, a trade association is created to represent the interests of a particular group, attempting to protect the group's interests against government control or excessive interference. The existence of an active trade association facilitates cartelization of an industry. Ironically, trade associations are sanctioned by the government as convenient conduits through which the government implements its control. This dual role has encouraged trade associations to flourish over the years. In 1985, there were 852 trade associations registered with the government, of which 152 associations were authorized to act as government agents.[9] Because of the close interaction between government and these business groups, senior positions in trade associations are often filled by early-retired, high-ranked civil servants and military officers.

For numerous lines of business, these associations are authorized as sole suppliers of their products to the government and its agencies. Others manage quality control for products produced by their members, and regulate members' investments to avoid excessive competition among the members.

Trade associations are particularly important in international trade. They provide business and market (domestic and international) information to their members. They also exert substantial influence on government policies with regard to import and export permits for particular products and the quotas of annual imports. In order to import or export "restricted" products, companies must obtain permits by submitting recommendations from their associations to the government. Consequently, only the members of an association can be involved in the import or export business. For several kinds of business, these associations are the exclusive importers and distributors of foreign products.

## Business Decision-Making Process

A business firm in Korea is rigidly structured, including in general nine hierarchical levels of officers starting from the chairman, the president and the vice-president. The chairman is usually the owner of the firm. The vice-president is followed by three hierarchical levels of managing

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9 *CHOSUN IL BO* (a daily newspaper), October 20, 1985, p. 10.

directors. Below the managing directors, there are three additional hierarchical responsibility units. Within this hierarchical business structure, responsibilities and levels of authority are clearly defined.

Similar to the Japanese business decision-making system, Korean business decisions are based on consensus. Under the consensus decision-making system, it is important that the opinions of each person in the hierarchical structure are valued. The decision-making process starts from the bottom echelon of the business hierarchy, and moves up step by step with input from each officer involved. Most business decisions including import and export decisions are finally made at the top level of managing directors. In other words, although the decision-making process includes a number of responsibility units and their managers, final decision-making responsibilities are assigned to the top few echelons of the hierarchy.

## Economic Growth and Structural Changes

The economic success story of Korea is well documented. The transformation of the Korean economy since the early 1960s is almost without precedent. As shown in table 3, the Korean economy grew at a rate of 8.3 percent a year (in real terms) during the period from 1962 to 1985. Per capita income (in current prices) rose from US$87 in 1962 to US$2,047 in 1985. This sustained high rate of income expansion transformed Korea from one of the poorest developing countries, with heavy dependence on agriculture and a weak balance of payments financed almost entirely by foreign aid, to a semi-industrial, middle-income nation with an increasingly strong external payment position.

Table 3 shows a rapid transformation in the structure of the economy. Despite substantial annual growth of agricultural production, the agricultural share of GNP declined drastically from 43.3 percent in 1962 to 15.0 percent in 1985. The primary reason for this decline was the manufacturing sector's growth of 15.8 percent a year, almost double the growth rate of the GNP. As a result, the manufacturing share of the GNP rose from 9.1 percent in 1962 to 31.9 percent in 1985. The mining and quarrying sector's contribution to the GNP declined slightly from 2.0 percent in 1962 to 1.5 percent in 1985, indicating the dependence of the Korean economy on imports of raw materials. The social overhead sector, which includes construction, public utilities, trade, banking, and public administration, grew at almost the same rate as the GNP. In terms

TABLE 3

KOREA'S MAJOR ECONOMIC INDICATORS, 1962-85

| | 1962 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|
| Population (million) | 26.5 | 32.2 | 35.3 | 38.2 | 41.1 |
| GNP (1980 constant price, billion won) | 8,979 | 17,284 | 26,113 | 37,205 | 52,573 |
| GNP per capita (current US$) | 87 | 248 | 591 | 1,605 | 2,047 |
| Share of GNP (%) | | | | | |
| Agriculture | 43.3 | 28.7 | 24.2 | 15.1 | 15.0 |
| Manufacturing | 9.1 | 14.2 | 21.6 | 30.6 | 31.9 |
| Mining & quarrying | 2.0 | 2.1 | 2.0 | 1.4 | 1.5 |
| Unemployment rate | 8.2* | 4.5 | 4.1 | 5.2 | 4.0 |
| Share of persons employed(%) | | | | | |
| Agriculture | 63.1* | 50.4 | 45.9 | 34.0 | 24.9 |
| Manufacturing | 8.0* | 13.2 | 18.6 | 21.7 | 23.4 |
| Mining & quarrying | 0.7* | 1.1 | 0.5 | 0.9 | 1.0 |
| Exports (billion US$) | 0.05 | 0.8 | 5.1 | 17.5 | 30.3 |
| Imports (billion US$) | 0.39 | 2.0 | 7.3 | 22.3 | 31.1 |
| Exports GNP (%) | 3.9 | 15.7 | 28.2 | 34.4 | 37.9 |
| Imports GNP (%) | 13.8 | 24.8 | 38.4 | 45.8 | 41.0 |
| Annual average growth (%) | | 1962-69 | 1970-80 | 1962-85 | 1980-85 |
| GNP (real) | | 9.8 | 8.1 | 8.3 | 7.5 |
| Inflation (wholesale) | | 13.3 | 18.3 | 13.3 | 5.1 |

Source: Economic Planning Board, Major Statistics of the Korean Economy, various issues, (Seoul, Korea: Economic Planning Board).

* values for 1963, the 1962 figures being unavailable.

of its share of the total number of persons employed, the agricultural sector declined from 63.1 percent in 1963 to 24.9 percent in 1985, while the manufacturing sector increased from 8.0 percent to 23.4 percent.

Structural changes have also occurred within the manufacturing sector. When Korea embarked on its industrialization during the early 1960s, its industrial policy emphasized the development of key industries for import substitution and for labour-intensive manufactured exports.[10] During the 1970s, the major economic strategy adopted by the Korean government was to develop heavy and chemical industries (including industrial chemical and petroleum products, iron and steel, machinery, electrical machinery, and transport equipment). As a result, heavy and chemical industries were thoroughly developed during the 1970s. This was done, however, at the cost of introducing some structural inbalance in the economy; an over-capacity was generated in heavy and chemical industries, and investment in technological innovation in light industries (including food and beverages, textiles, and wearing apparel) was overlooked, reducing their comparative advantages in the international market. Consequently, in the late 1970s, the strategy was modified, redirecting investment away from heavy and chemical industries. At the same time, partly on account of Korea's limited natural resources, industries with low demand for energy and raw materials, such as consumer electronic goods, machinery, and fine chemical industries, were strategically promoted.

The structural change within the manufacturing industry reflecting the changes in industrial strategy is shown in table 4. The ratio of heavy and chemical industrial output to total manufacturing output increased from 26.9 percent to 57.1 percent during the period 1962 to 1985, while that of light industrial output decreased from 73.1 percent to 42.9 percent during the same period. However, the speed at which heavy and chemical industry has been expanding was significantly slowed down after the late 1970s.

Although Korea's industrial development has been remarkable, it has not yet reached the levels of industrially developed countries. The primary industry sector is still large and the manufacturing sector relatively small, compared to those of developed countries. In 1983, for instance, the agricultural sector in Korea accounted for 14 percent of GNP, while it represented only four percent in Japan. On the other hand, the

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[10] For a detailed description of the industrialization process of the Korean economy, see Korea Development Bank, *Industry in Korea*, (Seoul, Korea: Korea Development Bank, 1985), chapter 1. For a broad discussion of Korea's industrial strategy, see K.W. Watkins, "The Transformation of Korea". *Euro-Asia Business Review*, vol. 1, no. 1 (October 1982), pp. 56-58.

TABLE 4

STRUCTURAL CHANGE IN THE MANUFACTURING SECTOR: RATIOS OF OUTPUT BY HEAVY AND CHEMICAL AND LIGHT INDUSTRIES
(percentage of the total manufacturing output)

| | 1962 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|
| Heavy and chemical | 26.9 | 44.3 | 48.2 | 50.9 | 57.1 |
| Light industry | 73.1 | 55.7 | 51.8 | 49.1 | 42.9 |

Source: Economic Planning Board, Major Statistics of the Korean Economy, various issues.

manufacturing sector accounted for 27 percent of Korea's GNP, compared to 30 percent for Japan.[11]

Exports and Imports

The expansion of exports, particularly of manufactured goods, served as the "engine" for the Korean economy's impressive growth. As shown in table 3, commodity exports increased by 32 percent a year, from US$50 million in 1962 to US$30.3 billion in 1985, more than a 600-fold increase in 23 years. As a result, exports as a percentage of GNP increased from 3.9 percent in 1962 to 37.9 percent in 1985. Table 5 shows that in 1962 manufactured goods accounted for 27.0 percent of total exports, but in 1985, they accounted for 95.4 percent of the total.

The United States and Japan were the major markets for Korean exports during the 1960s and the early 1970s. In recent years, however, Korea has made a vigorous effort to diversify its export markets geographically. As a result, the combined share of the United States and Japan declined from 75.4 percent in 1970 to 50.5 percent in 1985 (table 5). Table 5 also indicates a gradual increase in the Canadian share of Korean exports from 0.2 percent in 1962 to 4.1 percent in 1985.

[11] The World Bank, *World Development Report, 1985*, (Washington, D.C., The World Bank, 1985), p. 179.

TABLE 5

KOREA'S EXPORTS BY PRODUCT TYPE AND BY COUNTRY OF DESTINATION

| | 1962 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|
| Total (US$ million) | 55 | 835 | 5,081 | 17,505 | 30,283 |
| Product type (% of total) | | | | | |
| Manufactured goods | 27.0 | 83.6 | 88.3 | 92.3 | 95.4 |
| Others | 73.0 | 16.4 | 11.7 | 7.7 | 4.6 |
| Country of destination (% of total) | | | | | |
| USA | 21.9 | 47.3 | 30.2 | 26.3 | 35.5 |
| Japan | 42.9 | 28.1 | 25.4 | 17.4 | 15.0 |
| Canada | 0.2 | 2.3 | 3.9 | 1.9 | 4.1 |
| Others | 35.0 | 22.3 | 40.5 | 54.43 | 45.4 |

Source: Economic Planning Board, Major Statistics of the Korean Economy, (Seoul, Korea: Economic Planning Board), various issues.

The Korean economy relies heavily on imports, particularly of raw materials and crude oil in order to achieve its target progress. As shown in table 3, Korea's imports have increased from US$390 million in 1962 to US$31.1 billion in 1985. Consequently, imports as a percentage of GNP increased from 13.8 percent in 1962 to 41.0 percent in 1985. Table 6 shows the dependence of the Korean economy on imported raw materials and crude oil. Imports of raw materials and crude oil accounted for 83.4 percent of total imports in 1962, and although the ratio has declined over time, it was still 64.3 percent in 1985.

Each year up to 1986, Korea had a substantial trade deficit (table 3). In 1986, however, Korea registered for the first time ever, a trade surplus of US$5.3 billion. This remarkable achievement has been attributed to the "three low prices": the cheap oil, the low international interest rate, and the low value of the Korean won compared to the Japanese

TABLE 6

KOREA'S IMPORTS BY COMMODITY GROUP AND BY SOURCE COUNTRY

| | 1962 | 1970 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|
| Total (US$ million) | 422 | 1,984 | 7,274 | 22,292 | 31,136 |
| Commodity group (% of total) | | | | | |
| Raw materials | 76.7 | 63.6 | 56.3 | 51.7 | 46.4 |
| Crude oil | 6.7 | 6.7 | 17.5 | 25.3 | 17.9 |
| Others | 16.6 | 29.7 | 26.2 | 23.0 | 35.7 |
| By source country (% of total) | | | | | |
| USA | 21.9 | 29.5 | 25.9 | 21.9 | 20.8 |
| Japan | 42.9 | 40.8 | 33.5 | 26.3 | 24.3 |
| Canada | 0.5 | 1.2 | 2.1 | 1.7 | 2.0 |
| Others | 34.7 | 28.5 | 38.5 | 50.1 | 52.9 |

Source: Economic Planning Board, Major Statistics of the Korean Economy, (Seoul, Korea: Economic Planning Board), various issues.

yen. It is estimated that Korea's trade surplus will increase to US$6.8 billion in 1987.[12]

Until the mid-1970s, Korea imported mainly from the United States and Japan, but since the oil shock of 1973, it has sought to diversify import sources. As a result, the U.S. and Japanese share of Korean imports decreased from 59.4 percent in 1975 to 45.1 percent in 1985. The Canadian share of Korea's imports increased substantially, from 0.5 percent in 1962 to 2.0 percent in 1985. But clearly there is still room for growth in this market.

[12] Bank of Korea (the central bank), *Weekly Bulletin of Domestic and International Economies*, No. 1304, January 31, 1987.

## Prospects for the Korean Economy

Korea's economic success has been achieved against numerous odds. With its lack of natural resources, its high population density, its wartime destruction, and its heavy defense expenditure, Korea's sustained high economic growth can be attributed to several factors, including a commitment to growth, political stability with strong political leadership, a favorable international environment, entrepreneurial drive to exploit market opportunities, expertise in the government, and an appropriate development strategy.[13] Yet the most important factor has been an abundance of human capital. As indicated earlier, Korean workers tend to be industrious, well-educated, easily trainable, highly motivated, and dedicated to their work. There are no strong regional or religious differences, nor is there a deeply entrenched class or caste structure. Consequently, the pursuit of economic opportunity is not inhibited by tradition or class, and the mobility and adaptability of labour are relatively free of social limitations.

A question may arise as to whether Korea's rapid economic growth can continue. As with most countries, the Korean economy experienced a setback in 1980 for the first time in more than two decades, with a negative growth rate of -5.2 percent. However, the Korean economy recovered, recording a positive 6.2 percent growth rate in 1981, despite social and political disruptions. According to the Fifth Five-year Economic Development Plan released in August 1981, the economic growth rate for the 1982-86 period of the Fifth Plan was estimated to be 7.6 percent per year.[14] The actual average economic growth rate for the five-year period (1982-86) was 8.7 percent, much better than planned. According to the Sixth Five-Year Economic Development Plan released in October 1986, the economy is expected to grow at 7.2 percent a year during the 1987-91 period.[15] It is estimated that the Korean economy will

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[13] K.W. Watkins, "The Transformation of Korea", *Euro-Asia Business Review*, vol. 1, no. 1 (October 1982), pp. 56-58.

[14] Government of the Republic of Korea, *The Fifth Five-Year Economic and Social Development Plan, 1982-86*, (Seoul, Korea: Government of Korea, 1982).

[15] Economic Planning Board, Korea, *The Sixth Five-Year Economic and Social*

grow at an annual rate of 6.8 percent during the 1990s.[16] In view of the past realization of ambitious economic targets, Korea appears capable of achieving substantial growth well into the 1990s.

In order to achieve targeted growth during the 1980s and the 1990s, however, the Korean economy will require, above all, rapid expansion in the area of manufactured exports. To do this, Korea may have to liberalize imports and adopt commercial and investment policies in keeping with Korea's emerging position as an important trading nation. It appears that Korea has already taken actions in that direction. The government has dismantled some import restrictions, and liberalized foreign direct investment policy. Korea should therefore become an increasingly important market for Canada's exports, including minerals. To better understand Korea's import potential for Canadian minerals, one must examine overall trade relations between Canada and Korea.

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*Development Plan: Strategy and Macro-Economic Policy*, (Seoul, Korea: Economic Planning Board, 1986).

[16] Ministry of Energy and Resources, *Long-term Energy Prospects and Strategy toward the Year 2000*, (Seoul, Korea: Ministry of Energy and Resources, 1985), p. 43.

# 3. CANADA-KOREA ECONOMIC RELATIONS

## Introduction

Development of mineral trade between two countries is ultimately dependent upon their overall bilateral economic relations. The purpose of this chapter is to review Canada-Korea bilateral economic relations. Canada and Korea have become important trade partners, exchanging raw materials for manufactured goods. That trade pattern and its future development have important implications, not only for the development of mineral trade but also for the economic well-being of both countries.

This chapter measures the complementarity of the two economies and examines the relationship's main characteristics. Study of the complementarity should help to illuminate the future course of the bilateral economic relationship and implications for mineral trade between the two countries. Problems and conflicts, associated with bilateral trade, will also be examined, with remedial proposals. By solving these problems, the potential for a strong bilateral trade relationship may be more fully realized.

## Complementarity and Its Development

Bilateral trade between Canada and Korea has grown rapidly over the past two decades. As shown in table 7, annual two-way trade (exports plus imports) measured from the Korean side, increased from US$42.8 million in 1970 to US$1858.9 million in 1985, a 43-fold increment during the fifteen-year period, or a 28 percent annual growth rate. This can be compared with a 13 percent annual increment in Korea's world trade for the same period, illustrating the dramatic growth of Canada-Korea bilateral trade.[1]

It should be noted that, although Canada's bilateral trade with Korea accounted for a small portion of Canada's total trade - about one percent (table 7) - Korea was Canada's fifth largest trading partner in

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[1] International Monetary Fund, *Direction of Trade Statistics Yearbook*, (Washington, D.C., IMF), various issues.

TABLE 7

BILATERAL TRADE BETWEEN CANADA AND KOREA, 1970-85
(U.S. $ million)

| | Canada's Exports | | Canada's Imports | | Korea's Exports | | Korea's Imports | |
|---|---|---|---|---|---|---|---|---|
| | to Korea | % of Total | from Korea | % of Total | to Canada | % of Total | from Canada | % of Total |
| 1970 | 18 | 0.1 | 14 | 0.1 | 19.6 | 2.3 | 23.2 | 1.2 |
| 1971 | 25 | 0.1 | 19 | 0.1 | 28.9 | 2.7 | 39.0 | 1.6 |
| 1972 | 34 | 0.2 | 44 | 0.2 | 58.9 | 3.6 | 36.0 | 1.4 |
| 1973 | 66 | 0.2 | 91 | 0.4 | 114.8 | 3.6 | 82.5 | 1.9 |
| 1974 | 73 | 0.2 | 138 | 0.4 | 166.8 | 3.7 | 115.7 | 1.7 |
| 1975 | 81 | 0.2 | 163 | 0.5 | 197.3 | 3.9 | 150.2 | 2.1 |
| 1976 | 128 | 0.3 | 309 | 0.8 | 314.1 | 4.1 | 115.9 | 1.3 |
| 1977 | 136 | 0.3 | 304 | 0.7 | 298.8 | 3.0 | 149.6 | 1.4 |
| 1978 | 190 | 0.4 | 318 | 0.7 | 327.2 | 2.6 | 204.0 | 1.4 |
| 1979 | 312 | 0.6 | 395 | 0.7 | 387.6 | 2.6 | 326.3 | 1.6 |
| 1980 | 355 | 0.5 | 354 | 0.6 | 343.4 | 1.9 | 378.4 | 1.7 |
| 1981 | 370 | 0.5 | 506 | 0.7 | 483.5 | 2.3 | 530.7 | 2.0 |
| 1982 | 398 | 0.6 | 475 | 0.8 | 442.8 | 2.0 | 485.0 | 2.0 |
| 1983 | 456 | 0.6 | 642 | 1.0 | 629.2 | 2.6 | 444.4 | 1.7 |
| 1984 | 551 | 0.6 | 889 | 1.2 | 878.5 | 3.0 | 637.4 | 2.1 |
| 1985 | 575 | 0.6 | 1176 | 1.5 | 1228.7 | 4.1 | 630.2 | 2.0 |

Source: International Monetary Fund, Direction of Trade Statistics, Yearbook, (Washington, D.C., IMF), various issues.

1985. Canada was Korea's fourth largest trading partner in 1985 even though only a small portion (about three percent) of Korea's total trade involved Canada.[2] These observations indicate the concentration by both

[2] International Monetary Fund, *Direction of Trade Statistics Yearbook, 1986*, (Washington, D.C., IMF, 1986). Canada's five main trade partners are, in order of two-way trade size, the U.S., Japan, the U.K., Germany and Korea.

Canada and Korea on trade with the United States and Japan. In the recent past, however, the relative importance of Canada-Korea bilateral trade has been increasing.

Rapid growth of bilateral trade between Canada and Korea is primarily attributable to differences in their resource endowments. That is, the complementarity of the two economies has fostered rapid growth in bilateral trade since the mid-1970s.

It seems that the two countries began to appreciate the potential benefits inherent in this complementarity after the first oil crisis. The complementarity has been accentuated by patterns of economic development within each country. In particular, Korea adopted two important economic strategies during the 1970s. One was diversification of resource imports, and the other was developmentment of heavy and chemical industries. Both were facilitated by reliable supplies of industrial raw materials from Canada. Given this complementarity based on resource endowments, Korea's rapid economic growth, its industrial development, and its policy of resource diversification have been the key determinants of the recent increase in Canada-Korea bilateral trade. The extent and nature of Canadian and Korean economic complementarity are indicated in tables 8 to 11. Comparing table 8 with 10 (or table 9 with 11), it can be seen that Canada-Korea bilateral trade is quite consistent with the differences in resource endowment: Canada exports to Korea mainly agricultural and resource products, and it imports from Korea mainly manufactured goods. During the six-year period from 1980 to 1985, Canadian exports to Korea accounted for about 0.6 percent of the total Canadian exports, while imports from Korea accounted for about 1.0 percent of total Canadian imports (tables 8 and 10).

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Korea's four largest trade partners are the U.S., Japan, Hong Kong and Canada.

TABLE 8

CANADIAN EXPORTS OF MAJOR COMMODITIES AND PERCENTAGE TO KOREA
(Value expressed in Canadian $ million)

| | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|
| Food, feed, beverage and live animals | Total value | 8263 | 9442 | 10222 | 10409 | 10833 | 9638 |
| | V. to Korea* | 7.8 | 13.7 | 36.1 | 49.7 | 60.1 | 18.1 |
| | % to Korea | 0.1 | 0.1 | 0.4 | 0.5 | 0.6 | 0.2 |
| Crude wood, lumber, and paper | Total value | 12635 | 12789 | 11908 | 12742 | 15479 | 17057 |
| | V. to Korea | 50.7 | 59.3 | 25.9 | 38.8 | 56.8 | 56.4 |
| | % to Korea | 0.4 | 0.5 | 0.2 | 0.3 | 0.4 | 0.3 |
| Metal ores, concentrates and scrap | Total value | 4210 | 4086 | 3192 | 2896 | 3672 | 3462 |
| | V. to Korea | 15.9 | 32.5 | 28.3 | 51.2 | 63.2 | 21.6 |
| | % to Korea | 0.4 | 0.8 | 0.9 | 1.8 | 1.7 | 0.6 |
| Coal | Total value | 994 | 1147 | 1269 | 1313 | 1847 | 2010 |
| | V. to Korea | 66.2 | 125.9 | 140.0 | 160.6 | 211.8 | 252.2 |
| | % to Korea | 6.7 | 11.0 | 11.1 | 12.2 | 11.5 | 12.5 |
| Asbestos | Total value | 631 | 575 | 483 | 455 | 499 | 446 |
| | V. to Korea | 0.8 | 2.5 | 2.9 | 8.2 | 6.6 | 9.5 |
| | % to Korea | 0.1 | 0.4 | 0.6 | 1.8 | 1.3 | 2.1 |
| Sulphur | Total value | 543 | 810 | 720 | 572 | 831 | 1291 |
| | V. to Korea | 26.5 | 29.1 | 26.1 | 33.2 | 39.9 | 88.3 |
| | % to Korea | 4.9 | 3.6 | 3.6 | 5.8 | 4.8 | 6.8 |
| Potash | Total value | 949 | 1015 | 705 | 893 | 1186 | 946 |
| | V. to Korea | 25.4 | 42.8 | 30.5 | 35.9 | 49.0 | 42.3 |
| | % to Korea | 2.7 | 4.2 | 4.3 | 4.0 | 4.1 | 4.5 |
| Telecommunications equipment | Total value | 932 | 1263 | 1279 | 1466 | 2343 | 2544 |
| | V. to Korea | 11.4 | 17.2 | 55.4 | 40.8 | 43.7 | 42.0 |
| | % to Korea | 1.2 | 1.4 | 4.3 | 2.8 | 1.9 | 1.7 |
| Others | Total value | 45289 | 50211 | 52048 | 57373 | 72747 | 78516 |
| | V. to Korea | 301.1 | 121.8 | 137.8 | 137.0 | 188.9 | 245.2 |
| | % to Korea | 0.7 | 0.2 | 0.3 | 0.2 | 0.3 | 0.3 |
| Total Exports | Total value | 74446 | 81337 | 81825 | 88155 | 109437 | 115912 |
| | V. to Korea | 505.8 | 444.8 | 484.0 | 555.4 | 720.0 | 775.6 |
| | % to Korea | 0.7 | 0.5 | 0.6 | 0.6 | 0.7 | 0.7 |

Sources: Statistics Canada, Exports: Merchandise Trade, (Catalogue No. 65-202) and Exports by Countries, (Catalogue No. 65-003).

* Value to Korea.

TABLE 9

KOREAN IMPORTS OF MAJOR COMMODITIES, AND PERCENTAGE FROM CANADA
(Value expressed in U.S. $ million)

| | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|
| Food, feed, beverage, and live animals | Total value | 2270 | 1224 | 1570 | 1731 | 1687 | 1449 |
| | V. from C.* | 28.8 | 34.4 | 28.0 | 33.9 | 67.9 | 20.6 |
| | % from Canada | 1.3 | 2.8 | 1.8 | 2.0 | 4.0 | 1.4 |
| Crude Wood, lumber, and paper | Total value | 1226 | 1058 | 913 | 897 | 987 | 883 |
| | V. from C. | 46.7 | 41.7 | 26.5 | 32.3 | 56.0 | 53.3 |
| | % from Canada | 3.8 | 3.9 | 2.9 | 3.6 | 5.7 | 6.0 |
| Metal ores, concentrates, and scrap | Total value | 1835 | 1911 | 772 | 709 | 831 | 909 |
| | V. from C. | 47.9 | 41.9 | 38.4 | 45.0 | 42.2 | 18.4 |
| | % from Canada | 2.6 | 2.2 | 5.0 | 6.3 | 5.1 | 2.0 |
| Coal | Total value | 448 | 817 | 785 | 654 | 726 | 1042 |
| | V. from C. | 71.1 | 115.6 | 140.7 | 128.3 | 170.0 | 223.2 |
| | % from Canada | 15.9 | 14.1 | 17.9 | 19.6 | 23.4 | 21.4 |
| Asbestos | Total value | 14.7 | 18.0 | 17.9 | 22.1 | 21.5 | 18.2 |
| | V. from C. | 2.1 | 2.8 | 2.5 | 6.0 | 6.6 | 7.3 |
| | % from Canada | 14.3 | 15.6 | 14.0 | 27.1 | 30.7 | 40.1 |
| Sulphur | Total value | 49.4 | 53.4 | 54.7 | 44.9 | 57.1 | 78.7 |
| | V. from C. | 23.9 | 31.3 | 28.3 | 25.0 | 35.5 | 63.7 |
| | % from Canada | 48.4 | 58.6 | 51.7 | 55.7 | 62.2 | 80.9 |
| Potash | Total value | 36.3 | 40.6 | 39.6 | 27.0 | 36.0 | 47.2 |
| | V. from C. | 26.9 | 37.0 | 37.0 | 22.2 | 33.5 | 33.5 |
| | % from Canada | 74.1 | 91.1 | 93.4 | 82.2 | 93.1 | 71.0 |
| Telecommunications equipment | Total value | 466 | 487 | 538 | 621 | 614 | 545 |
| | V. from C. | 1.2 | 2.9 | 34.6 | 31.7 | 10.5 | 13.0 |
| | % from Canada | 0.3 | 0.6 | 6.4 | 5.1 | 1.7 | 2.4 |
| Others | Total value | 15947 | 20522 | 19561 | 21484 | 25671 | 26165 |
| | V from C. | 129.8 | 223.1 | 149.0 | 120.0 | 215.2 | 197.2 |
| | % from Canada | 0.8 | 1.1 | 0.8 | 0.6 | 0.8 | 0.8 |
| Total Imports | Total value | 22291 | 26131 | 24251 | 26192 | 30631 | 31136 |
| | V. from C. | 378.4 | 530.7 | 485.0 | 444.4 | 637.4 | 630.2 |
| | % from Canada | 1.7 | 2.0 | 2.0 | 1.7 | 2.1 | 2.0 |

Sources: Korean Traders Association, Foreign Trade Statistics, 1982-1985, and Office of Customs Administration, Statistical Yearbook of Foreign Trade, 1980-1981.

* Value from Canada.

TABLE 10

CANADIAN IMPORTS OF MAJOR MANUFACTURED GOODS, AND PERCENTAGE FROM KOREA
(Value expressed in Canadian $ million)

| | | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|---|
| Transport equipment | Total value | 7075 | 8934 | 9034 | 10904 | 14902 | 18402 |
| | Value from K.* | 0.3 | 0.4 | 0.4 | 1.6 | 5.4 | 316.2 |
| | % from. Korea | - | - | - | - | - | 1.7 |
| Iron and steel product | Total value | 507 | 665 | 491 | 431 | 579 | 733 |
| | Value from K. | 20.4 | 34.8 | 24.5 | 24.1 | 36.5 | 59.5 |
| | % from Korea | 4.0 | 5.2 | 5.0 | 5.6 | 6.3 | 8.1 |
| Textiles and clothing | Total value | 1004 | 1244 | 1253 | 1504 | 1903 | 2009 |
| | Value from K. | 131.9 | 198.3 | 225.1 | 262.5 | 347.7 | 363.6 |
| | % from Korea | 13.1 | 15.9 | 18.0 | 17.5 | 18.3 | 18.1 |
| Electronic machinery | Total value | 1391 | 1763 | 1725 | 2201 | 3124 | 2998 |
| | Value from K. | 62.1 | 81.4 | 76.3 | 118.1 | 181.3 | 155.9 |
| | % from Korea | 4.5 | 4.6 | 4.4 | 5.4 | 5.6 | 5.2 |
| Footwear | Total value | 314 | 398 | 350 | 375 | 433 | 446 |
| | Value from K. | 53.4 | 73.4 | 61.4 | 71.1 | 86.0 | 79.3 |
| | % from Korea | 17.0 | 18.4 | 17.5 | 19.0 | 19.9 | 17.8 |
| All other goods | Total value | 59022 | 66121 | 54777 | 60106 | 74439 | 80326 |
| | Value from K. | 146.3 | 219.9 | 198.6 | 314.0 | 495.4 | 632.5 |
| | % from Korea | 0.2 | 0.3 | 0.4 | 0.5 | 0.7 | 0.8 |
| Total Imports | Total value | 69274 | 79129 | 67630 | 75520 | 95460 | 104914 |
| | Value from K. | 414 | 608 | 586 | 791 | 1151 | 1607 |
| | % from Korea | 0.6 | 0.8 | 0.9 | 1.0 | 1.2 | 1.5 |

Sources: Statistics Canada, Imports: Merchandise Trade, (Catalogue No. 65-203) and Imports by Commodities, (Catalogue No. 65-007), and Imports by Countries, (Catalogue No. 65-006).

* Value from Korea.

TABLE 11

KOREAN EXPORTS OF MAJOR MANUFACTURED GOODS, AND PERCENTAGE TO CANADA
(Value: millions of U.S. dollars)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|
| Transport equipment | | | | | | |
| Total value | 142.5 | 181.4 | 424.6 | 334.1 | 667.0 | 972.3 |
| Value to Canada | - | 0.3 | 0.8 | 10.8 | 117.2 | 479.4 |
| % to Canada | - | 0.2 | 0.2 | 3.2 | 17.6 | 49.3 |
| Iron and steel products | | | | | | |
| Total value | 2151 | 2634 | 1901 | 1832 | 2045 | 1811 |
| Value to Canada | 30.1 | 54.2 | 15.2 | 11.5 | 30.1 | 37.7 |
| % to Canada | 1.4 | 2.1 | 0.8 | 0.6 | 1.5 | 2.1 |
| Textiles and clothing | | | | | | |
| Total value | 4704 | 5714 | 6025 | 6133 | 7114 | 6994 |
| Value to Canada | 113.9 | 160.8 | 195.5 | 229.1 | 292.1 | 303.7 |
| % to Canada | 2.4 | 2.8 | 3.2 | 3.7 | 4.1 | 4.3 |
| Electronic machinery | | | | | | |
| Total value | 790 | 956 | 1099 | 1540 | 1857 | 1964 |
| Value to Canada | 37.6 | 51.7 | 57.7 | 98.2 | 130.1 | 105.3 |
| % to Canada | 4.8 | 5.4 | 5.3 | 6.4 | 7.0 | 5.4 |
| Footwear | | | | | | |
| Total value | 904 | 1049 | 1154 | 1235 | 1352 | 1534 |
| Value to Canada | 39.2 | 52.5 | 34.8 | 54.6 | 56.6 | 49.4 |
| % to Canada | 4.3 | 5.0 | 3.0 | 4.4 | 4.2 | 3.2 |
| All other goods | | | | | | |
| Total value | 8814 | 10720 | 11250 | 13370 | 16211 | 17008 |
| Value to Canada | 122.6 | 164.0 | 138.8 | 225.0 | 262.4 | 253.2 |
| % to Canada | 1.4 | 1.5 | 1.2 | 1.7 | 1.6 | 1.5 |
| Total Exports | | | | | | |
| Total value | 17505 | 21254 | 21853 | 24445 | 29245 | 30283 |
| Value to Canada | 343.4 | 483.5 | 442.8 | 629.2 | 878.5 | 1228.7 |
| % to Canada | 2.0 | 2.3 | 2.0 | 2.6 | 3.0 | 4.1 |

Sources: Korean Traders Association, Foreign Trade Statistics, 1982-1985, and Office of Customs Administration, Statistical Yearbook of Foreign Trade, 1980-1981.

Although Canada is richly endowed with agricultural and other natural resources, its exports of agricultural and resource products to Korea have not been successful. In the case of food and agricultural products (food, feed, beverage and live animals), Canada exported to Korea an annual average of $30 million during the 1980-85 period, as shown in table 8. Korea is poorly endowed with agricultural resources. Although its annual imports of food and agricultural products amounted to more than US$1.5 billion during the 1980-85 period, only two percent of that was supplied by Canada (table 9). This indicates the trade potential arising from complementarity with respect to agricultural products has not been fully realized. The case of pulp and other crude wood, lumber, and paper products is similar to that for food and agricultural products.

Respecting metallic mineral products, Canada's exports of metal ores, concentrates and scrap metals to Korea accounted for less than 0.7 percent of total Canadian exports during the 1980-85 period, and the Canadian share of Korea's total imports was 3.9 percent on average during the same period (tables 8 and 9). In view of large Canadian reserves of various metals and Korea's high import reliance for most metals, Canada's export performance in metal ores and concentrates appears to be extremely poor.[3] Furthermore, more than half of Canada's total exports of metal ores and concentrates to Korea consisted of copper alone during the 1980-85 period, indicating insignificant amounts of exports of metal ores other than copper.[4]

Other minerals that Canada exports to Korea in significant proportions are coal, asbestos, sulphur, and potash, and in turn they command high shares of Korea's total imports. Canada's exports of coal to Korea have increased rapidly since the late 1970s. They were valued at $252 million in 1985, accounting for 12.5 percent of total Canadian coal exports. Canada's share of Korea's coal imports has increased

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[3] It may be argued that, because of the transport cost advantage due to geographical proximity, Australia takes a large share of the Korean mineral market, relative to Canada. However, development of tankers has made mere physical distance a less important factor in determining the transport costs. Further, ocean transport costs depend heavily on whether returning empty liners are available or not. Since Korea has trade surplus with North America, but trade deficit with Australia, more empty liners returning to Korea are available from Canada than from Australia.

[4] Statistics Canada, *Exports by Commodities*, Cat. 65-004, various issues.

since the late 1970s, reaching 21.4 percent in 1985. As explained in chapters 4 and 5, this phenomenon is attributed to Korea's diversification policy regarding energy sources.

Canadian asbestos commands a significant share of Korea's total asbestos imports. In 1985, for instance, Canada supplied 40.1 percent of Korea's total asbestos imports. The most successful exports to Korea in terms of their shares in the Korean market are sulphur and potash. Canada's sulphur exports to Korea were valued at $88.3 million in 1985, accounting for 6.8 percent of total Canadian exports (table 8). Canada's share of Korea's sulphur imports rose to 80.9 percent in 1985 (table 9). Similarly, Canada's potash exports to Korea amounted to $42.3 million in 1985, accounting for 4.5 percent of total Canadian potash exports (table 8). Canada supplied, on average, about 84 percent of Korea's potash requirements for the 1980-85 period. It should be noted that Canada is the main supplier of asbestos, sulphur and potash in the Western world (table 12).

Canada has also exported significant amounts of telecommunications equipment to Korea in the recent past (table 8). From 1982 to 1985, Canada's annual exports of telecommunications equipment to Korea were worth about $45 million, accounting for 2.7 percent of total Canadian exports, and Canada's share in Korea's total imports was also significant - about three percent. Canada's successful export performance in telecommunications equipment is attributed the country's advanced technology in that field. This demonstrates that a country's comparative advantage is not necessarily based on resource endowment.

Turning to Canada's imports from Korea, the main import items are manufactured goods, as shown in table 10. Canada's imports of transportation equipment recorded a sharp increase in 1985 due to the arrival of Hyundai cars. Canada's share of Korea's total exports of transport equipment also increased greatly from 3.2 percent in 1983 to 49.3 percent in 1985. Incidently, Canada's imports of iron and steel products have also increased in the recent past, accounting for 8.1 percent of total Canadian imports in 1985.

Canada's most significant import commodities from Korea are still consumer goods such as textiles, clothing and footwear. Canada's 1985 imports of textiles and clothing were valued at $363.6 million, accounting for 18.1 percent of total Canadian imports (table 10). As for footwear, Canada bought 17.8 percent of its total imports from Korea in 1985, at $79.3 million. However, Canada's share of Korea's total exports of tex-

tiles, clothing and footwear have not been as high, reflecting Korea's diversified export markets (table 11). Canada also imports substantial quantities of electronic consumer goods such as radios, televisions and video equipment.

As mentioned above, the structure of Canada's export specialization in agricultural and resource goods and telecommunications equipment matches Korea's import needs. At the same time, Korea's export specialization in consumer and light-industrial goods matches Canada's import emphasis. This suggests again that the two economies are complementary. However, the low proportions of major trading commodities in each country's total trade, except for a few commodities for Korea, indicate that the potential of the economies' complementarity has not been fully realized. In other words, bilateral trade has not been fully developed, or from another perspective, the extent of economic interdependence is quite low.

High economic interdependence is not necessarily desirable, however, because it would entail two kinds of vulnerability. The first kind involves transmission of economic fluctuations between the partner countries. The second kind of vulnerability derives from costs associated with limitations on the ability to shift trade to other markets, other sources of supply, or other commodities.[5] In order to minimize such vulnerability, ideally the partner countries should cooperate in choosing among alternative approaches to the achievement of each other's social and economic goals. Realistically, one cannot expect such cooperation among sovereign states. But the economic interdependence of Canada and Korea is still low, as explained, so there is no danger of such vulnerability.

Furthermore, as shown in tables 12 and 13, Canadian and Korean trade is relatively insignificant in terms of world trade totals, except for asbestos, sulphur and potash. Either country could shift bilateral trade in commodities other than these three to other markets without significantly affecting the Canada-Korea trade balance. On the other hand, both countries' reliance on the U.S. and Japanese economies is so high that they are liable to be affected by trade-balance problems between the U.S. and Japan. Therefore, Canadian and Korean business and

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[5] Crawford, J., Okita, S., Drysdale, P., and Kojima, K., "Economic Interdependence in the Western Pacific", in J. Crawford and S. Okita, (ed.), *Raw Materials and Pacific Economic Integration*, (Vancouver, University of British Columbia, 1978), pp. 41-47.

governments leaders should perhaps consider decreasing their reliance on the U.S. and Japanese economies, at the same time expanding bilateral trade between Canada and Korea.

TABLE 12

SHARES OF CANADA'S EXPORTS AND KOREA'S IMPORTS OF MAJOR COMMODITIES IN WORLD TRADE
(percentage of world trade)

| | 1980 | | 1982 | |
|---|---|---|---|---|
| | Canada's Exports | Korea's Imports | Canada's Exports | Korea's Imports |
| Food, feed, beverage and live animals* | 5.2 | 1.4 | 5.8 | 1.4 |
| Crude wood, lumber and paper | 22.0 | 4.7 | 24.3 | 5.8 |
| Metal ores, concentrates and scrap | 12.0 | 2.0 | 11.4 | 2.9 |
| Coal | 6.1 | 2.8 | 7.3 | 4.4 |
| Asbestos | 57.8 | 1.4 | 57.0 | 2.3 |
| Sulphur | 42.0 | 3.4 | 65.5 | 4.0 |
| Potash | 79.6 | 2.0 | 80.5 | 2.8 |
| Telecommunications equipment | 3.8 | 2.0 | 4.7 | 3.1 |

Sources: U.N. International Trade Statistics Yearbook 1983, Vol. I and II, (New York: U.N. 1985) and U.N. Yearbook of International Commodity Statistics, 1984, (New York: U.N. 1984).

* Data for food, feed, beverage and live animals are from Yearbook of International Commodity Statistics, 1984 under the heading of agricultural primary commodities.

TABLE 13

SHARES OF CANADA'S IMPORTS AND KOREA'S EXPORTS OF MAJOR MANUFACTURED GOODS IN THE WORLD TRADE
(percentage of the world trade)

| | 1980 | | 1982 | |
|---|---|---|---|---|
| | Canada's Imports | Korea's Exports | Canada's Imports | Korea's Exports |
| Transport equipment | 8.4 | 0.3 | 8.5 | 0.3 |
| Iron and steel products | 2.0 | 2.4 | 1.8 | 3.1 |
| Textiles and clothing | 2.2 | 6.2 | 2.4 | 7.9 |
| Electronic machinery | 3.6 | 3.0 | 2.2 | 3.0 |
| Footwear | 2.4 | 9.3 | 2.8 | 11.2 |

Source: U.N. International Trade Statistics Yearbook, 1983. (New York: U.N. 1985).

## Prospects for Bilateral Trade

The nature of bilateral trade development between Canada and Korea will depend on the complementarity of the two economies based on comparative advantages. At present, Canada's comparative advantages lie in agricultural and mineral products as well as telecommunications equipment, while Korea's comparative advantages lie in light-industrial products such as textiles, footwear, electronic consumer goods, and some iron and steel products. As long as the underlying complementarity between the Canadian and Korean economies persists and either of the two economies continues to grow, operation of free market forces will foster the growth of bilateral trade. The expected high growth of the Korean economy should increase its demand for Canadian minerals and increase overall trade between the two countries. Because mature economies' demand for minerals will remain static, and given that the Korean economy is still developing, the share of Canadian mineral exports going to Korea will increase and the share of Korean mineral imports supplied by Canada will rise. This trend is, of course, contingent

on the cost competitiveness of Canadian minerals and on Canada's marketing strategy.

As with any ongoing trade relationship between two countries, difficulties and conflicts will arise in Canada-Korea trade relations. The comparative advantages one country possesses tend to change gradually over time, and the evolution of comparative advantage has important implications for the domestic economy as well as for bilateral economic relations. Canada's comparative advantages in agricultural and mineral products may not diminish, but it will continue to lose out in relatively labour-intensive industries including textiles, electronic consumer goods, and probably certain types of machinery. Korea's comparative advantages will increase in labour-intensive skilled-labour manufacturing, in industries where only moderate amounts of capital are required, and in certain types of machinery and steel products. It appears that, even in some high technology areas, Canada is losing its competitive edge as its comparative advantage declines.

This pattern of evolution in comparative advantages could pose serious problems for Canada. Canada would not be happy to sit and watch the loss of comparative advantages in what have been important domestic industries. Certainly Canada wants to diversify the bilateral economic relationship with Korea to reflect the Canadian position as a sophisticated industrial society with many technological assets. Furthermore, for the last few years, the trade balance between Canada and Korea has favoured Korea to a large extent (table 7), and the likelihood of redressing the imbalance in the near future is not good under the current circumstances.

This series of problems, if not resolved, could generate serious friction between the two countries and result in protectionist action that would hinder proper trade development. Only by alleviating problems in overall Canada-Korea bilateral trade, will complementarity lead to actual trade of commodities including minerals. Therefore, Canada and Korea, both being vulnerable to shifts in the global economy as trading nations, should work together on the basis of mutual interests, not only at government levels but also at nongovernment levels. Several relevant policies and actions will be suggested to conclude this chapter.

## Suggestions for Improvement in Canada-Korea Relations

Prospects for translating the underlying economic complementarity into mutually beneficial trade could be improved if economic decisions in each country were made in a context of mutual understanding. In this respect, Canada and Korea have not taken enough heed of one another, in part because of their market concentration on the United States and Japan. This seems particularly true for Korean views of Canada. Improvement of Koreans' understanding about Canada is crucial to the enhancement of trade relations over the long term. Canada should try to change its image in the eyes of many influential Koreans as strictly a mineral supplier and a market for manufactured goods.[6] This cannot be achieved over a short period of time but rather will entail a long-term process.

Appreciation of a long-term relationship's mutual benefits should be enhanced, and any hindrance to the development of such a relationship should be identified and redressed. For this purpose, continuing examination of, and in-depth research into, problems and issues associated with the growth of the Canadian-Korean economic relationship are required. This necessitates the development of more expertise in the business and academic communities of each country with respect to affairs in the other country. Also, regular discussion among relevant experts and government officials is required.[7] To this end, a consultative forum in the area of Canada-Korea bilateral economic relations would be desirable. This forum should include members of the academic

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6 In recent years not a single article about Canada has been published in broadly read and influential Korean periodicals, such as the *Korean Economic Journal, Finance and Economics, Weekly Bulletin of Domestic and International Economies*, and the *Monthly Bulletin*. In Canada, there have been only a few newspaper columns on the Korean economic success stories, but no in-depth analysis of the Canada-Korea bilateral relationship.

7 It appears that the Canada-Korea Business Council has appreciated the importance of such expertise, particularly from the academic community. At the Fourth Joint Conference of the Council, business groups of the two countries agreed to facilitate exchanges of personnel and ideas in the academic and professional fields. *Report of the Fourth Joint Conference of the Canada-Korea Business Council*, (Seoul: Federation of Korean Industries, 1985). What will be done to this end remains to be seen.

communities as well as business groups. Because the tasks are long-term in nature, business groups alone (e.g., the Canada-Korea Business Council), may not be adequate because they tend to be concerned with short-term aspects of business. This forum will facilitate exchanges of expertise, discussion of policy consultations, and trade harmonization.

The mineral trade will grow along with bilateral trade between Canada and Korea, and is sure to remain a major element in the economic relationship. Yet the growth of mineral trade is largely a function of the mutual confidence of each side in the other as a reliable supplier and secure market. Unilateral embargos on mineral exports or moratoriums on mineral exploration, even if relatively minor incidents, would undermine the mutual confidence.[8] Volatility in Canadian natural resources policies including environmental regulations, and federal-provincial conflicts with respect to minerals, can only have adverse effects on the credibility of Canada as a reliable source of supply.[9] The gains from mineral trade must be distributed equitably to the satisfaction of each side. Ex post changes in tax systems to capture a larger share of the gain, when realized, will increase the uncertainty associated with the system, and weaken mutual trust.

Both Canada and Korea should appreciate that an economic interdependence, simply involving a Korean movement toward manufacturing industries and a corresponding Canadian strict emphasis on land- and resource-intensive industries will not be viable. Canada's need to diversify its economic relationship with Korea must be recognized, and eco-

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[8] A case in point is the U.S. embargo on soya bean exports of the summer of 1973. Although it was brief, the embargo reduced the credibility of the United States as a guaranteed source of supply for Japanese agricultural imports. The effect of the embargo has not been limited to agricultural products, but also affected trade relations regarding other commodities. For information about the U.S. embargo on soya beans and its effects on Japan, see H. Patrick, "American Foreign Economic Policy towards the Western Pacific", in J. Crawford and S. Okita, (ed.), *Raw Materials and Pacific Economic Integration*, pp. 22- 38. During personal interviews conducted by the author, some influential Korean businessmen were still mentioning the moratorium on uranium exploration imposed by the B.C. government during the 1970s.

[9] Some Korean businessmen still remember changes in mineral taxation and federal-provincial conflicts in Canada during the 1970s, and they express their difficulties in understanding the Canadian system.

nomic interdependence should develop in such a way as to upgrade the industrial structures of both countries through more efficient intra-industry specialization. To this end as well, an understanding of the dynamics of each economy and an effort to harmonize policies are of critical importance.

# 4. KOREA'S MINERAL DEMAND AND SUPPLY: COAL, URANIUM, AND POTASH

## Introduction

In order to identify and assess Korea's market potential for Canadian minerals, it is neccessary to examine Korea's demand for and supply of minerals. A country's demand for minerals depends on its economic growth and the extent of its industrialization. Chapter 2 indicated that the Korean economy will continue its rapid growth and will be further industrialized. Thus, it is highly likely that Korea's overall demand for minerals will increase in the future. How large is the Korean market for the minerals chosen for this study (coal, uranium and potash), and how will it look in the future? These questions will be addressed in this chapter.

Korean energy policy plays a critical role in the determination of demand for individual energy resources (coal and uranium), so energy policy warrants attention. This chapter will subsequently assess the demand for energy by primary energy sources and will project Korea's future energy use to the year 2001. The demand for and supply (or imports) of individual energy resources (anthracite, steam coal, coking coal, and uranium) will be analyzed and their future demands estimated. Finally, current and anticipated demand for potash and will be examined.

## The Basis of Korean Energy Policy

The importance of government policy for the Korean economy was described in Chapter 2. The government role in the energy sector is particularly important due to Korea's heavy reliance on imported energy. Hence, in order to assess Korea's future energy needs, an examination of government energy policy is in order.[1]

Energy policy is an integral part of the central economic development plan. The general direction of the national energy policy is set by

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[1] For a detailed description of Korea's overall energy policy and its changes over time, see the Ministry of Energy and Resources, *Long-Term Energy Projects and Strategy toward the Year 2000*, pp. 64-83.

the Economic Planning Board and is incorporated into the five-year economic development plans. The key institution with respect to energy is the Ministry of Energy and Resources, which develops and implements a detailed energy policy. Another institution contributing to the national energy policy is the Korea Institute of Energy and Resources, which is responsible for long-term economic analysis of energy requirements and implications for the Korean economy. These three institutions are closely related and cooperate in developing the national energy policy.

The basic goal of Korean energy policy is maintenance of a balance of energy demand and supply consistent with the objective of rapid economic expansion. But policy strategy has changed over time. Prior to the first oil shock in 1973, the government sought to meet Korea's demand for energy mainly with imported oil, which was relatively inexpensive. After the two oil crises of the 1970s, however, the government revised its energy policy drastically. This change was required for the following reasons. First, a positive relationship between economic growth and energy demand was identified. Thus, Korea's vigorous pursuit of high economic expansion would entail an increased demand for energy. Second, because domestic sources of energy would further decline in the future, the increase in energy demand would have to be met largely with imported energy, thereby increasing reliance on imports. Third, the government realized there is always a possibility of another oil crisis due to uncertainty and vulnerability in the world oil market.

Under these circumstances, the government has proclaimed two basic objectives for its energy policy: to improve the economy's energy efficiency and to ensure a steady supply of diversified energy sources. The government has already introduced various programs to improve the efficiency of energy usage. It has also intensified so-called resource diplomacy with energy-rich countries. This involves the development of close cooperative relations with individual members of OPEC in order to ensure a stable oil supply. For its energy diversification policy, the government has been substituting nuclear power, coal, and liquefied natural gas (LNG) for oil in the area of power generation to reduce the nation's dependence on imported oil. At the same time, the government has encouraged Korean overseas develop-for-import projects involving coal, uranium, and oil.

Sustained low oil prices in the recent past might have led the government to suspend its oil-substitution strategy, but such a suspension has not been announced and no significant change has been made

in the national energy policy until recently.[2] The thrust of Korean energy policy is reflected in the demand for and supply of primary energy, as examined in the following section.

## Primary Energy Demand and Supply

As shown in table 14, consumption of primary energy increased in line with the growth trend of the Korean economy. Energy consumption reached a total of 56.7 million TOE (tonnes oil equivalent) in 1985, registering a 7.6 percent annual growth rate for the period 1962-85. This indicates the elasticity of energy demand with respect to the Korean GNP was about 0.92 over the 23-year period. During the same period, per capita energy consumption increased by 5.6 percent a year. Yet the level of per capita energy consumption in Korea was less than half the level of Japan in 1981, indicating good prospects for further increases in Koreans' energy consumption.[3]

A remarkable change in the structure of energy consumption has occurred over time. Petroleum consumption increased most rapidly during the 1960s, and the proportion of petroleum in total energy consumption increased from 9.4 percent in 1962 to 47.2 percent in 1970 (table 14). This rapid increase was attributed to the government's policy of meeting the increasing industrial demand for energy mainly with inexpensive imported oil. After the two oil crises, particularly after the second crisis in 1979, the government intensified its campaign to reduce Korean oil dependency. Consequently, the growth rate of petroleum consumption has been reduced to about one percent a year since 1980, and its share in total energy consumption declined from 61.3 percent in 1980 to 49.1 percent in 1985 (table 14). Conversely, the use of nuclear power, introduced in 1978, increased dramatically, and by 1985 it was supplying 7.4 percent of total energy consumed. Charcoal, once a major

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[2] This was mentioned by Dong-Rak Chung, the chief representative of the Korea Electric Power Corporation for the Canada-Korea Business Council Conference held at Vancouver, October 3-4, 1985. See Dong-Rak Chung, "KEPCO's Demand and Supply Program for Steaming Coal and Uranium", presented at the above Conference.

[3] Ministry of Energy and Resources, *Long-Term Energy Prospects and Strategy toward the Year 2000*, p. 70.

TABLE 14

CONSUMPTION OF PRIMARY ENERGY AND RELIANCE ON IMPORTED ENERGY
(In million tons equivalent to oil. Figures inside brackets are percentages of the total)

| | 1962 | 1970 | 1975 | 1980 | 1985 | Annual Growth(%) 1962-85 |
|---|---|---|---|---|---|---|
| Total | 10.5 (100.0) | 19.7 (100.0) | 27.6 (100.0) | 44.1 (100.0) | 56.7 (100.0) | 7.6 |
| Coal | 4.0 (37.9) | 5.8 (29.6) | 8.1 (29.2) | 13.2 (27.3) | 21.7 (38.3) | 7.7 |
| Petroleum | 1.0 (9.4) | 9.3 (47.2) | 15.7 (56.9) | 27.0 (61.3) | 27.8 (49.1) | 15.6 |
| Hydro | 0.2 (1.7) | 0.3 (1.5) | 0.4 (1.5) | 0.5 (1.1) | 0.9 (1.6) | 7.4 |
| Nuclear | - | - | - | 0.9 (2.0) | 4.2 (7.4) | 32.5* |
| Firewood charcoal | 5.3 (51.1) | 4.3 (21.6) | 3.4 (12.4) | 2.5 (5.7) | 2.0 (3.6) | -4.3 |
| Reliance on imported energy | 1.1 (10.9) | 9.3 (47.5) | 16.2 (58.8) | 32.5 (73.7) | 43.3 (76.4) | 17.1 |
| Domestic source | 9.4 (89.1) | 10.4 (52.5) | 11.4 (41.2) | 11.6 (26.3) | 13.4 (23.6) | 1.5 |

Source: Economic Planning Board, Major Statistics of the Korean Economy, 1986, p. 113.

* Annual average growth rate for 1978-85.

source of energy, supplying more than half the total energy consumed, provided only 3.6 percent in 1985.

Table 14 shows that coal provided 37.9 percent of total Korean energy consumption in 1962. Its importance declined rapidly during the 1960s as the demand shifted away from coal to oil in line with the oil-reliance policy. The coal component of total energy consumption decreased from 37.9 percent in 1962 to 29.6 percent in 1970. However, with the increasing price of oil during the 1970s, the country returned to coal as a primary source of energy, and the demand for coal increased steadily. The relative importance of coal rose from 27.3 percent of energy consumed in 1980 to 38.3 percent in 1985.

The most striking feature of the Korean energy economy is its reliance on imported energy. Korea has only small reserves of coal (anthracite alone), and no oil or uranium, so it has to rely on imported energy. As shown in table 14, reliance on imported energy increased from 10.9 percent in 1962 to 76.4 percent in 1985. The Korean government has indicated that reliance on imported energy will continue to increase in the future.[4]

## Primary Energy Outlook

As demonstrated, energy consumption in Korea increased at a 7.6 percent annual rate, compared to an 8.3 percent growth rate for the economy, during the period 1962-85. It is estimated that the Korean economy will grow annually at 7.2 percent for the rest of the 1980s and then at 6.8 percent for the 1990s. Weighing those growth rate estimates and the observed relationship between energy consumption and the economy, the Korean Ministry of Energy and Resources has estimated that consumption of primary energy will increase from 56.7 million TOE in 1985 to 124.2 million TOE by 2001. This suggests a 5.0 percent annual average growth rate for the period (table 15).

As tabulated in table 15, significant changes will occur in the structure of energy consumption. Oil dependence is forecast to decrease from 49.1 percent in 1985 to 39.7 percent by 2001, while the share of nuclear energy is expected to increase from 7.4 percent in 1985

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[4] Ministry of Energy and Resources, *Long-Term Energy Prospects and Strategy toward the Year 2000*, p. 70.

TABLE 15

OUTLOOK FOR PRIMARY ENERGY: 1985-2001*
(in million tons equivalent to oil. Figures inside brackets are percentages of the total)

| | 1985 | 1991 | 2001 | Average Growth (%) 1985-2001 |
|---|---|---|---|---|
| Total | 56.7 (100) | 79.1 (100) | 124.2 (100) | 5.0 |
| Coal | 21.7 (38.3) | 23.9 (30.2) | 42.6 (34.3) | 4.3 |
| Anthracite | 10.1a (20.3)a | 10.1 (12.8) | 8.8 (7.1) | -1.0 |
| Bituminous | 6.4a (12.8)a | 13.8 (17.4) | 33.8 (27.2) | 10.3 |
| Petroleum | 27.8 (49.1) | 37.5 (47.4) | 49.3 (39.7) | 3.6 |
| Hydro | 0.9 (1.6) | 1.0 (1.3) | 1.2 (1.0) | 1.8 |
| Nuclear | 4.2 (7.4) | 11.9 (15.0) | 20.6 (16.6) | 10.4 |
| Firewood charcoal | 2.0 (3.6) | 2.2 (2.8) | 4.0 (3.2) | 4.4 |
| LNG | - - | 2.6 (3.3) | 6.5 (5.2) | 9.6b |
| Reliance on imported energy | 43.3 (76.4) | 67.1 (84.8) | 111.3 (89.6) | 6.1 |
| Domestic energy | 13.4 (23.6) | 12.0 (15.2) | 12.9 (10.4) | -0.2 |

Sources: Economic Planning Board, Major Statistics of the Korean Economy, and the Ministry of Energy and Resources, Long-Term Energy Prospects and Strategy toward the Year 2000, p. 44.

* The level of demand for each energy component for 1991 and 2001 is computed based on its percentage share of the total, the latter being estimated by the Ministry of Energy and Resources.

a Figures for 1983.

b The annual average growth rate for the period 1991-2001.

to 16.6 percent by 2001. This would mean an increase in nuclear energy use from 4.2 million TOE in 1985 to 20.6 million TOE by 2001, or a 10.4 percent annual growth rate over the period.[5]

The relative importance of coal is expected to decrease slightly, but the use of coal will increase in absolute terms by 4.3 percent a year for the period 1985-2001. What is most relevant to this study is a change in the composition of coal consumption. Table 15 shows that the share of anthracite coal in total primary energy use is expected to fall from 20.3 percent in 1983 to an estimated 7.1 percent by 2001, a trend offset by an increased share of bituminous coal, which is expected to go from 12.8 percent in 1983 to 27.2 percent by 2001. Consumption of bituminous coal will probably increase from the 1983 level of 6.4 million TOE to 33.8 million TOE by 2001, a 10.3 percent annual growth rate.

There are several reasons why Korea will become increasingly dependent on bituminous coal. First, recoverable reserves of bituminous coal in the world are large, in fact three to five times as large as oil reserves on a energy-equivalent basis. Second, major bituminous coal exporting countries such as the United States, Canada, and Australia are more stable, politically and economically, than most oil exporting countries. Third, for the same amount of energy, bituminous coal is currently cheaper than petroleum. The international CIF (cost, insurance and freight) price of bituminous coal was estimated at about 50 percent of the petroleum price in 1984.[6]

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[5] It is interesting to compare Korea's reliance on nuclear energy with that of Japan. Japan consumed 20.3 million TOE in 1980, supplying 5.0 percent of its total primary energy, compared to the Korean consumption of 0.9 million TOE, accounting for 2.0 percent of total primary energy. By the year 2000, the Japanese nuclear energy supply is expected to amount to 128.8 million TOE, accounting for 17.7 percent of its total energy, as compared to Korea's corresponding amounts of 20.6 million TOE and 16.6 percent, respectively, in 2001. This indicates that Japan now relies on nuclear energy more than does Korea, but by the 21st century, their reliance on nuclear energy will be about the same. For the information on Japanese nuclear energy, see Ian Smart, "Nuclear Resources: the Dilemmas of Interdependence", in N. Akao (ed.), *Japan's Economic Security*, (New York: St. Martin's Press, 1983), pp. 119- 143.

[6] For this estimate, see the Ministry of Energy and Resources, *Long-term Energy Prospects and Strategy toward the Year 2000*, p. 239.

Given Korea's limited domestic energy sources and anticipated high industrialization and economic growth, the extent of reliance on domestic energy is bound to increase even further. The proportion of energy supplied from domestic sources is expected to decrease over time, while reliance on imported energy will increase from 76.4 percent of the total in 1985 to 89.6 percent by 2001 (table 15). Korea's entire requirements for petroleum, bituminous coal and uranium must be met with imports. Given the increasing importance of coal, that commodity in its three forms of anthracite, steam, and coking coal will be examined.

## Anthracite Coal Demand and Supply

Anthracite coal was widely used by households, industries, and power plants until the middle of the 1960s. During the 1970s it was limited to household energy use, but anthracite consumption increased by 5.6 percent a year from 1962 to 1985, amounting to 25 million tons in 1985.[7]

More than 85 percent of anthracite used during the 1970s and the early 1980s was by households. Anthracite coal provides the bulk of home heating and cooking, chiefly in the form of cylindrical briquettes that fit in traditional under-floor "ondol" heaters. Although anthracite has been the major energy source for households, demand is expected to decrease as household incomes rise, and demand for more clean and convenient energy such as oil and gas increases. The Ministry of Energy and Resources estimates annual demand for anthracite will decrease from the current level of 25 million tons to 19 million tons by 2001.[8]

Anthracite coal produced in Korea has a relatively low calorific value at 4000 kcal/kg on average. Korea's reserves stood at about 1.66 billion tons at the end of 1984, of which 648 million tons can be mined economically with present technology. If 21 million tons are mined annually (at the current rate), domestic anthracite coal reserves will last

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[7] Economic Planning Board, *Major Statistics of the Korean Economy, 1986*, p. 122.

[8] Ministry of Energy and Resources, *Long-Term Energy Prospects and Strategy toward the Year 2000*, p. 209.

for about 30 years.[9] It is expected that domestic anthracite production will gradually decrease from the 1986 level of 21 million tons to 18 million tons by 2001 due to diminishing reserves.[10]

Domestic supply of anthracite has not met domestic demand since 1978, and substantial amounts of anthracite have been imported annually. It is estimated that annual imports of anthracite coal will gradually decrease from the current level of several million tons to one million by 2001.

## Steam Coal Demand and Supply

As indicated earlier, the Korean government has adopted a policy of expanding the use of non-oil energy sources to minimize energy vulnerability stemming from excessive reliance on imported petroleum. To this end, coal has been chosen as the primary non-oil energy source. Since 1980, the government has maintained a policy of meeting increasing energy demand with coal by holding oil consumption at the 1980 level. As a result, coal consumption has increased dramatically, a phenomenon largely attributed to increases in steam coal consumption by the electric power industry and the cement industry. Both industries will be examined with respect to their energy sources.

### The Electric Power Industry in Korea

Electricity is the fundamental and indispensable energy source for all industries engaged in production. The demand for electricity increases as a nation's economy expands, and the amount of electricity used as a proportion of total energy consumption tends to increase with industrialization. Thus, development of electric power generation has received special attention in Korea since the start of economic planning in 1962. The Korea Electric Power Corporation (KEPCO), a government-owned

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[9] Korea Mining Promotion Corporation (KMPC), *Korea Minerals Yearbook, 1983*, (Seoul, Korea: KMPC, 1985), p. 2.

[10] Ministry of Energy and Resources, *Long-Term Energy Prospects and Strategy toward the Year 2000*, p. 209.

corporation established in 1961, is the authority entrusted with generation and distribution of power. It undertakes power development plans in accordance with the government's economic plans.

As shown in table 16, the demand for electricity in Korea increased to a total of 50.7 billion kilowatt hours (KWH) in 1985, 34 times the 1962 level, with a 16.6 percent annual growth rate for the period from 1962 to 1985. Power generation and its capacity have increased at about the same rate as consumption (table 16).

There have been significant changes in the relative importance of hydro-, thermal-, and nuclear-power generation capacity. The share of hydro-electric generation capacity as a percentage of the total capacity decreased from 32.9 percent in 1962 to 13.8 percent in 1985. Since most of Korea's hydro resources have already been developed, future increases in the power demand will be met by nuclear and thermal power.

Construction of nuclear power plants began in 1970, with nuclear power generation commencing in 1978. In 1985, three nuclear power plants were operating with a combined capacity of 2.9 million kilowatts, accounting for 17.8 percent of the total generating capacity (table 16). Thermal power accounted for the remaining capacity of 68.5 percent.

It should be noted that energy sources for thermal power generation have changed significantly over time. Prior to 1980, oil was the major fuel source for thermal power generation. Table 16 shows that in 1984, oil accounted for 50.8 percent of the total generating capacity, while coal accounted for 22.3 percent. A year earlier, oil had accounted for 54.7 percent compared to 16.1 percent by coal.[11]

Substantial amounts of steam coal were used for thermal power generation until 1965, but during the 1960s, power stations originally designed to be fired by coal were converted to utilize low-priced oil. Until 1982, only anthracite coal was used for coal-thermal generation, but a year later half a million tons of steam coal were used. Steam coal consumption had increased to 5.6 million tons by 1985.[12] The new importance of steam coal was largely the result of reconversion to coal

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[11] Korea Department Bank, Industry in Korea (in Korean), volume 1, (Seoul, Korea: Korea Department Bank, 1985), p. 66. data for the period before 1983 are not available.

[12] Economic Planning Board, Major Statistics of the Korean Economy, 1986, p. 131.

TABLE 16

CONSUMPTION AND GENERATION OF ELECTRICITY AND INSTALLED GENERATING CAPACITY

| | 1962 | 1970 | 1975 | 1980 | 1985 | Annual Growth 1962-85 |
|---|---|---|---|---|---|---|
| Consumption (billion KWH) | 1.5 | 7.7 | 16.6 | 32.7 | 50.7 | 16.6% |
| Gross generation* (billion KWH) | 2.0 | 9.2 | 19.8 | 37.2 | 58.0 | 15.8% |
| Installed capacity (million KW) | 0.4 | 2.5 | 4.7 | 9.4 | 16.1 | 16.9% |
| Hydro (% of total capacity) | 32.9 | 13.1 | 13.2 | 12.3 | 13.8 | - |
| Thermal (% of total capacity) | 67.1 | 86.9 | 86.8 | 81.4 | 68.5 | - |
| Oil | na | na | na | na | 50.8a | - |
| Coal | na | na | na | na | 22.3a | - |
| Gas | na | na | na | na | 4.9a | - |
| Nuclear (% of total capacity) | - | - | - | 6.3 | 17.8 | - |

Source: Economic Planning Board, Major Statistics of the Korean Economy, 1986, p. 129, and the Ministry of Energy and Resources, long-Term Energy Project and Strategy toward the Year 2000, p. 160.

* Differences between gross generation and actual consumption are accounted for by transmission losses and plant usages.

a 1984 values, the 1985 values being unavailable.

by those power stations originally designed for coal but later converted to oil.

## Electric Power Outlook

In order to meet the increasing demand for electricity, power generation capacity will have to increase from the 1984 level of 14.2 million KW to 40.6 million KW by 2001, a 6.4 percent annual growth rate for this period (table 17). It should be noted that the estimated growth rate of electric generation capacity is similar to that of the economy, indicating the close relationship. Substantial changes in energy sources are anticipated for power generation over the 1984-2001 period, corresponding with the government's diversification of energy sources policy aimed at reducing the dependency on oil and increasing the use of nuclear power and coal. Table 17 shows that the contribution of petroleum to the total generating capacity will decrease from 48.8 percent in 1984 to 7.8 percent by 2001, a 4.6 percent annual decrease. The nuclear power generation capacity is expected to increase by 12.0 percent a year and to account for 32.1 percent of the total capacity by 2001. The contribution of coal is expected to increase from the 1984 level of 24.6 percent of the total capacity to 37.7 percent by 2001. This indicates coal-fired power generation capacity will increase by 9.6 percent a year for the period 1985-2001.

As suggested, two types of coal are used for power generation purposes: anthracite and steam coal. The importance of anthracite coal will decrease in both absolute and relative terms, providing an insignificant share (1.5 percent) of the total capacity by 2001 (table 17). In contrast, steam coal will grow in importance from 16.9 percent in 1984 to 36.2 percent of the total capacity by 2001. The 11.2 percent annual increase will make steam coal second in growth level to nuclear power. In absolute terms, the demand for power-generating steam coal is expected to increase from half a million tons in 1983 to 25.8 million tons by 2001, a 23.9 percent annual growth rate over this period (table 18). All the steam coal required for power generation must be obtained as imports, clearly indicating attractive market potential for steam coal in Korea.

TABLE 17

OUTLOOK FOR ELECTRICITY: GENERATION CAPACITY AND ENERGY SOURCES, 1984-2001
(Million KW. Figures inside brackets are percentages of the total)

| | 1984 | 1991 | 2001 | Annual Growth(%) 1985-2001 |
|---|---|---|---|---|
| Total Capacity | 14.2 (100) | 21.8 (100) | 40.6 (100) | 6.4 |
| Energy sources | | | | |
| Petroleum | 6.9 (48.8) | 4.8 (22.0) | 3.2 (7.8) | -4.6 |
| Nuclear | 1.9 (13.5) | 7.6 (35.0) | 13.0 (32.1) | 12.0 |
| Coal: total | 3.5 (24.6) | 4.0 (18.5) | 15.2 (37.7) | 9.6 |
| Anthracite | 1.1 (7.4) | 0.9 (3.9) | 0.6 (1.5) | -3.6 |
| Steam | 2.4 (16.9) | 3.2 (14.6) | 14.7 (36.2) | 11.2 |
| Hydro | 1.2 (8.5) | 2.8 (12.8) | 5.4 (13.2) | 9.2 |
| LNG | 0.7 (4.9) | 2.6 (11.9) | 3.8 (9.2) | 10.4 |

Sources: Ministry of Energy and Resources, Long-Term Energy Prospect and Strategy toward 2000, p. 160, and Dong-Rak Chung, "KEPCO's Demand and Supply Program for Steaming Coal and Uranium".

TABLE 18

OUTLOOK FOR BITUMINOUS COAL (ANTHRACITE, STEAM, AND COKING), 1983-2001
(Million tons. Figures inside brackets are the percentage of the total)

| | 1983 | 1991 | 2001 | Annual Growth(%) 1984-2001 |
|---|---|---|---|---|
| Total | 9.6 (100) | 20.9 (100) | 51.1 (100) | 9.7 (100) |
| For steel | 6.2 (67.4) | 8.9 (42.6) | 13.1 (25.6) | 4.2 |
| For thermal | 0.5 (5.2) | 6.0 (28.7) | 25.8 (50.5) | 23.9 |
| For cement | 2.9 (30.2) | 4.4 (21.1) | 5.6 (11.0) | 3.7 |
| For other industries* | - | 1.6 (7.7) | 6.5 (12.7) | 15.0a |
| Share of bituminous in total energy (%) | 12.8 | 17.4 | 27.2 | |

Source: Ministry of Energy and Resources, Long-Term Energy Prospects and Strategy toward the Year 2000, pp. 235-238.

* Other industries include textile, dyeing, paper and chemical industries, and they use steam coal for their industrial boilers.

a Annual average growth rate for the period 1991-2001.

The Cement Industry

Another important industrial usage of steam coal is for cement production. Korea has large deposits of high quality limestone, clay, and anthracite, the basic raw materials for cement. In line with the nation's drive toward industrialization, the cement industry has achieved a high level of growth and modernization, and has consolidated its position as

one of Korea's key industries. Its production capacity ranks 12th in the world.[13]

Production capacity increased by 9.7 percent annually from 1970, reaching 25.9 million tons in 1985.[14] The industry's production capacity was expected to reach 30 million tons in 1987.[15] A substantial portion of cement produced by Korea's eight cement companies has been exported, a trend likely to continue.

In the face of rising oil prices, the energy-intensive cement industry has switched from oil to steam coal. Prior to 1979, oil had been used as the sole energy source. In 1980, however, the cement industry began to convert to coal. As a result, the industry's oil consumption decreased from 1.5 million kilolitres in 1978 to 40 thousand kilolitres in 1984.[16] Steam coal consumption increased from 0.3 million tons in the first year of conversion (1980) to 2.6 million tons in 1983.[17]

At the end of 1984, all 35 calcination kilns were converted to mixed combustible kilns. However, because some fuel oil is still needed for auxiliary burning, the current level of oil consumption will persist. Any increase in steam coal consumption by the cement industry will be proportionate to the increase in cement production itself.

The Cement Industries Association in Korea has estimated domestic demand for cement will increase at an average annual rate of 8.0 percent up to 1987.[18] However, it appears that the growth of cement production will level off by the 1990s. Based on these estimates, the industry's demand for steam coal is expected to increase by 3.7 percent a year for the period 1983-2001, from 2.9 million tons in 1983 to 5.6 million tons in 2001 (table 18).

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[13] Korea Development Bank, *Industry in Korea*, p. 111.

[14] Economic Planning Board, *Major Statistics of the Korean Economy, 1986*, p. 113.

[15] Korea Development Bank, *Industry in Korea (in Korean)*, vol. 1, p. 447.

[16] Federation of Korean Industries, *Korean Economic Yearbook, 1985*, (Seoul, Korea: the Federation of Korean Industries, 1985), p. 400.

[17] Korea Development Bank, *Industry in Korea*, p. 116.

[18] *Ibid.*, p. 117.

## Coking Coal Demand and Supply

Another important industrial market for bituminous coal exists in iron and steel production. In order to identify and assess the Korean market for coking coal, the Korean iron and steel industry will be examined with an emphasis on its energy source.

### The Korean Iron and Steel Industry

The Korean iron and steel industry has made remarkable progress in a relatively short period of time and under difficult market conditions. Korea's principal international competitors have enjoyed advantages of experience and technological expertise. Korea's domestic market is limited, and the country, which lacks iron ore reserves, is located far from the main sources of raw materials. Japan, the nearest off-shore market, has itself become the world's most efficient producer of iron and steel. Korea, however, recognized that the iron and steel industry was vital to its ambitious development plans, and in 1973 it created the Pohang Iron Ind Steel Company (POSCO), a government-owned corporation. With POSCO's expansion, Korea became the 10th largest non-communist crude steel producer in 1983.[19]

Korea's demand for steel products has increased rapidly with investment in roads and harbours, construction of housing, and steady growth of large-scale steel consuming sectors such as automobiles, shipbuilding and machinery. As shown in table 19, demand increased by 19.5 percent annually during the period 1973-1983, reaching 14.6 million tons in 1983. Domestic production of steel products increased by the same amount during that period, with a large proportion of domestic steel products exported. In 1983, for example, 43.2 percent of the total demand for steel products involved production of goods for export. At the same time, substantial amounts of semi-processed steel products had to be imported for the production of finished products.

The steel industry's major raw materials include iron ore, coking coal, limestone and scrap. Only limestone is supplied entirely from

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[19] Korea Development Bank, *Industry in Korea*, p. 51.

TABLE 19

DEMAND AND SUPPLY FOR STEEL PRODUCTS
(Million tons. Figures inside brackets are the percentage of the total)

| | 1975 | 1980 | 1982 | 1983 | Annual Growth(%) 1975-83 |
|---|---|---|---|---|---|
| Demand | 3.5 | 10.5 | 13.1 | 14.6 | 19.5 |
| Domestic | 2.5 (71.2) | 5.6 (53.3) | 7.0 (53.4) | 8.2 (56.2) | 16.0 |
| Export | 1.0 (28.6) | 4.8 (45.7) | 6.1 (46.6) | 6.3 (43.2) | 25.8 |
| Supply | 3.6 | 10.6 | 12.6 | 14.7 | 19.2 |
| Domestic | 2.9 (80.6) | 8.4 (79.2) | 11.3 (89.7) | 12.6 (85.7) | 20.1 |
| Import | 0.7 (19.4) | 2.1 (19.8) | 1.4 (11.1) | 2.2 (15.0) | 16.4 |

Source: Korea Development Bank, Industry in Korea (in Korea), Vol. I, p. 176.

domestic sources - the other raw materials have to be imported at least in part. Table 20 shows that in 1983 95.4 percent of the iron ore, 100 percent of the coking coal, and 32.4 percent of the scrap metals requirements were met by imports. Consequently, it is important for the Korean iron and steel industry to secure access to raw materials on a long-term basis to avoid any major supply bottlenecks affecting future steel production.

POSCO consumed about 600 thousand tons of coking coal in its first year, 1973. Thereafter, coking coal consumption increased continuously in line with POSCO's enlarged facilities. As shown in table 20, coking coal consumption increased from 1.5 million tons in 1976 to 6.0

million tons in 1983, generating a 21.6 percent annual growth rate for the 1976-83 period.

TABLE 20

DEMAND AND SUPPLY OF MAJOR RAW MATERIALS FOR STEEL PRODUCTS
(Million tons, and percentage of total)

| | 1976 | 1980 | 1982 | 1983 | Annual Growth(%) 1976-83 |
|---|---|---|---|---|---|
| Iron ore (mt) | 2.8 | 9.1 | 12.3 | 12.1 | 23.3 |
| Imports (%) | 77.5 | 95.0 | 95.6 | 95.4 | - |
| Coking coal (mt) | 1.5 | 4.2 | 6.3 | 6.2 | 21.6 |
| Imports (%) | 100.0 | 100.0 | 100.0 | 100.0 | - |
| Scrap (mt) | 1.9 | 4.9 | 5.7 | 6.5 | 19.1 |
| Imports (%) | 64.3 | 38.7 | 39.9 | 32.4 | - |

Source: Korea Development Bank, Industry in Korea, p. 58.

Iron and Steel Outlook

The iron and steel industry is expected to grow moderately in the future; the high rates of growth achieved during the 1970s and the early 1980s are not expected in the future due to protectionism in the leading steel-consuming countries and growing competition among developing nations. As shown in table 21, the overall demand for crude steel products, combining domestic markets and exports, is expected to increase by 6.6 percent a year for the 1985-91 period, well below the growth rate of the 1970s and the early 1980s. The level of domestic production is expected to increase from 12.6 million tons in 1984 to 17.4 million tons in 1991, a 4.6 percent annual growth rate.

TABLE 21

OUTLOOK FOR DEMAND AND PRODUCTION OF CRUDE STEEL, 1984-91
(Million tons. Figures inside brackets are percentage of the total)

| | 1984 | 1988 | 1991 | Annual Growth(%) 1985-91 |
|---|---|---|---|---|
| Demand for crude steel | 15.7 | 20.5 | 24.6 | 6.6 |
| Domestic | 10.2 (65.0) | 13.8 (67.3) | 16.8 (68.3) | 7.4 |
| Export | 5.5 (35.0) | 6.7 (32.7) | 7.8 (31.7) | 5.0 |
| Production | 12.6 | 16.6 | 17.4 | 4.6 |

Source: Korea Development Bank, Industry in Korea, p. 59.

Given increasing protectionism and competition, Korea faces two challenges: development of new products in response to changing demand, and securing a stable supply of low-cost raw materials. Comparing tables 19 and 20, one finds that the demand for the two main raw materials (iron ore and coking coal) increased in parallel with the domestic production of steel products, particularly after 1980. Based on these estimated trends, the Ministry of Energy and Resources has predicted demand for coking coal used in steel production will increase from 6.2 million tons in 1983 to 13.1 million tons by 2001, a 4.2 percent annual growth rate (table 18).[20]

[20] This is compared to a 3.8 percent growth rate of the demand for coking coal by Asia excluding Japan. For this estimate, see Anderson, D.L., *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and*

In summary, the prospects for bituminous coal as a whole are very bright. As shown in table 18, the demand for bituminous coal is expected to increase by 9.7 percent a year for the period 1983-2001, reaching 51.1 million tons in 2001. The proportional contribution of bituminous coal to total energy output is also expected to increase, from 12.8 percent in 1983 to 27.2 percent in 2001.

## Uranium Demand and Supply

Nuclear power generation has been advocated as part of the government's policy of energy-source diversification. The intention is not only to ensure a stable supply of electricity but also to introduce high technology. As indicated earlier, three nuclear power plants were in operation at the end of 1985. The operation of these nuclear plants has shown Korea that the fuel cost is so low that, even if uranium prices increase substantially, the impact on nuclear power costs will be minimal. Accordingly, Korea will expand its use of nuclear power; six new plants under construction should be completed by 1989 with a total capacity of 5.7 million KW.[21]

In terms of electric power generated, nuclear power accounted for 20.1 percent of the total in 1984, and is expected to comprise 43.4 percent in 2001.[22] These figures compare with 13.5 percent and 32.1 percent, respectively, in terms of nuclear generation capacity (table 17).

Korea has no indigenous source of uranium, so all uranium used in nuclear power generation has to be imported. Data for the annual consumption of uranium is not available in the public domain. Accumulated imports of natural uranium ($U_3O_8$) from the beginning of nuclear power development to 1985 were 5,730 tons, and over 1000 tons were

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*Australian Experience*, (Kingston: Centre for Resource Studies, 1987), p. 7.

[21] Ministry of Energy and Resources, Long-Term Energy Prospects and Strategy toward the Year 2000, p. 168.

[22] Ministry of Energy and Resources, *Long-Term Energy Prospects and Strategy toward the Year 2000*, p. 168.

imported in 1986.[23] According to an estimate by KEPCO, cumulative uranium requirements by 1990 will amount to 11,000 tons.[24] Based on this information together with actual amounts of power generated by nuclear plants during the 1978-85 period and the government's long-term plan for nuclear power generation (table 22), annual uranium requirements can be estimated, as shown in table 22.[25] Uranium requirements for 1986 were approximately 1,170 tons. For 1991 and 1996 respectively, with nine and eleven nuclear plants, annual uranium requirements are estimated at 2,554 tons and 3,170 tons. When 15 units are in operation in 2001, 4,460 tons of natural uranium will be required annually. This suggests a 9.3 percent annual growth rate of uranium requirements for the period 1986-2001, compared to a 12.0 annual growth rate of nuclear power generation capacity for the 1984-2001 period (table 17). Although such estimates of uranium requirements remain tentative, they

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[23] This was provided by a senior official of KEPCO during a personal interview conducted by the author.

[24] Dong-Rak Chung, "KEPCO's Demand and Supply Program for Steaming Coal and Uranium" p. 4.

[25] Annual uranium requirements are estimated as follows. Up to 1985, the three nuclear power plants in operation generated 53.2 billion KWH in total. As shown in table 22, the estimated amounts of nuclear power to be generated in 1986 and 1991 are, respectively, 21.7 billion KWH and 47.3 billion KWH. According to KEPCO (Dong-Rak Chung), one additional nuclear plant with the same generation capacity will be added each year from 1986 to 1990 except for 1987 when two plants will be added. It is thus assumed that power generation will increase from 21.7 billion KWH in 1986 to 47.3 billion KWH in 1991 at a fixed growth rate (16.8 percent). This indicates that accumulated power generation by 1990 will be 205 billion KWH. Dividing cumulative uranium requirements of 11,000 tons by the total power generation of 205 billion KWH up to 1990, the uranium requirement per one billion KWH of electric power is estimated to be 54 tons. This is applied to the estimated amount of nuclear power generation for each year (table 22). It is interesting to note that the requirement of natural uranium in Japan was estimated at 135-162 tons per one billion KWH, which is more than twice as large as the above estimate. The estimate for Japan is not consistent with KEPCO's estimate of the cumulative uranium requirements of 11,000 tons up to 1990, nor is it consistent with KEPCO's actual amounts of uranium imports up to 1986. The estimate for Japan appears to be inflated. For the estimate for Japan, see Ian Smart, "Nuclear Resources: The Dilemma of Interdependence", p. 126.

TABLE 22

ESTIMATES OF KOREA'S REQUIREMENTS (IMPORTS) OF NATURAL URANIUM ($U_3O_8$), 1986-2001

| | 1977-1985 | 1986 | 1991 | 1996 | 2001 |
|---|---|---|---|---|---|
| Number of nuclear plants | 3 | 6 | 9 | 11 | 15 |
| Nuclear power generation capacity (bill KwH) | 1.9 | 4.8 | 7.6 | 9.4 | 13.0 |
| Power generated by nuclear (bill KwH) | 53.2a | 21.7 | 47.3 | 58.7 | 82.6 |
| Uranium requirement (tons) | 5,730b | 1,172 | 2,554 | 3,170 | 4,460 |

Source: Ministry of Energy and Resources, Long-Term Energy Prospects and Strategy towards the Year 2000, p. 168, Economic Planning Board, Major Statistics of the Korean Economy, 1986, p. 129, and Dong-Rak Chung, "KEPCO's Demand and Supply Program for Steaming Coal and Uranium," p. 4.

a Accumulated actual amounts for the periods.
b Accumulated actual uranium imports for the period.

are indicative of the future development of uranium requirements and they reveal a strong Korean market potential for uranium.

## Potash Demand and Supply

Potash is a name for various soluble salts containing potassium, but it usually refers to potassium chloride (KCl). It is graded on the basis of its potassium oxide ($K_2O$) equivalent. Potash is used mainly as a fertilizer, and in the fertilizer trade, it usually refers to potassium chloride rated to the equivalent to 60 percent $K_2O$. Korea has no indigenous source of potash, so all potash has to be imported. Because potash is used as a

raw material for fertilizer, the Korean fertilizer industry will be examined, with emphasis on its demand for potash.

## The Korean Fertilizer Industry

Prior to 1961 when the first fertilizer plant was constructed, Korea relied entirely on imported fertilizer, funded by foreign aid, to meet domestic demand. During the first economic development plan period (1962-66), the Korean government placed strong emphasis on the chemical fertilizer industry in order to achieve self-sufficiency in chemical fertilizer and to increase food production. As a result, before the second economic development plan started in 1967, four fertilizer production companies went into operation with a total annual production capacity of 1.1 million tons.[26]

The second five-year plan (1967-71) promoted chemical fertilizer as part of the petrochemical sector, and production capacity increased by leaps and bounds. Korea achieved the target of fertilizer self-sufficiency in 1968. By 1977, when production capacity had increased to 2.9 million tons, greatly surpassing domestic demand, the fertilizer industry had become an important export industry.

With the oil crises and the subsequent global recession, the Korean chemical fertilizer industry suffered from increased production costs, weakening international competitiveness, and decreased domestic and foreign demand. In addition, excessive investment in fertilizer plants in the late 1970s resulted in overcapacity and excessive competition among domestic producers. In order to cope with these problems, structural adjustment of the industry was necessary. The government directed mergers of some companies and closures of some inefficient facilities in the early 1980s. As a result, there are now nine fertilizer manufacturers in Korea with a total production capacity of 2.9 million tons.[27]

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[26] Korea Development Bank, *Industry in Korea*, p. 127.

[27] *Ibid.*

## Fertilizer Demand and Supply

As shown in table 23, actual production has increased along with production capacity. During a one-year period (1968), output more than doubled, and thereafter it increased steadily until the 1980 world economic recession. After a prolonged setback during the period 1980-83, the industry started to recover in 1984, achieving the 1979 output level of 3.0 million tons in 1985. Fostered by the Korean government's efforts to increase agricultural productivity, annual domestic demand for chemical fertilizer has increased rapidly up to 1975. As shown in table 23, domestic demand increased from 1.1 million tons in 1967 to 1.9 million tons in 1975. In 1976, the price paid by farmers for chemical fertilizer increased by 69 percent over the 1975 level as a result of the oil crisis, causing a sudden decrease in fertilizer consumption.[28] Since then, the domestic demand has stabilized at about 1.5 million tons a year, and the excess production has to be exported.[29] During the 1980-85 period, about 45 percent of fertilizer produced was exported (table 23). Hence, the health of the Korean fertilizer industry is heavily dependent upon the international fertilizer market and Korean competitiveness. Korea has been exporting mainly to Southeast Asian countries including Thailand and the Phillippines, followed by Iran and several African countries.

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[28] Ministry of Agriculture and Fisheries, *Year Book of Agriculture and Fishery Statistics, 1982*, (Seoul, Korea: Ministry of Agriculture and Fisheries, 1983), p. 286.

[29] Kang, Jung-Il and Choi, Ji-Hyun, "Prospects of Fertilizer Demand", *The Korean Rural Economics Review*.

TABLE 23

PRODUCTION, DOMESTIC SALES, EXPORTS AND IMPORTS OF FERTILIZER BY FERTILIZER TYPE
(thousand tons)

| | Production | Domestic Sales | Exports | Imports |
|---|---|---|---|---|
| 1967 | 421 | 1,131 | 20 | 1 |
| 1968 | 1,133 | 1,179 | 27 | 1 |
| 1970 | 1,321 | 1,214 | 129 | - |
| 1975 | 2,075 | 1,941 | - | 1 |
| 1979 | 3,092 | 1,805 | 1,115 | - |
| 1980 | 2,854 | 1,672 | 1,309 | - |
| 1983 | 2,632 | 1,433 | 1,181 | - |
| 1984 | 2,946 | 1,534 | 1,311 | - |
| 1985 | 2,986 | 1,618 | 1,277 | - |
| Annual growth (%) 1970-85 | 5.6 | 1.9 | 16.5 | - |

Source: Jin Ho Song, "On Korean Fertilizer Industry", unpublished report, Seoul, Korea: The Kunsul Co., Ltd, 1986, p. 5.

Nutrient Composition of Fertilizer

There have been significant changes in both production and consumption of fertilizer with respect to nutrient composition (nitrogen, phosphorus and potassium).[30] When Korea began producing chemical fertilizer in the

[30] Demand for and supply of fertilizer can be measured either in terms of type

1960s, it was solely nitrogen fertilizer, as indicated in table 24. In 1967, Korea started to produce phosphorus and potassium fertilizers. Since then, the proportion of nitrogen fertilizer has declined gradually to 48.6 percent of the total fertilizer in 1985 (table 24), while phosphorus and potassium fertilizers increased to 34.9 and 16.5 percent respectively.

Table 25 shows changes in domestic consumption of fertilizer by nutrient. During the early 1960s, Korean farmers relied on nitrogen and phosphorus fertilizer, but with encouragement and education from the government and other educational agencies (such as the National Agricultural Cooperative Federation and the Association for Potash Research in Korea) for more diverse fertilizer nutrients, farmers started to include potassium. As a result, the nutrient composition ratio among nitrogen, phosphorus, and potassium increased from 63:22:15 in 1970 to 51:23:26 in 1985; the latter ratio being close to the government-recommended ratio of 50:25:25. But the current ratio is still far from the ideal of 40:30:30 for Korean soil.[31] Of the three nutrient types, potassium fertilizer consumption has increased most rapidly, from 83 thousand tons in 1970 to 213 thousand tons in 1985, or a 6.5 percent annual growth over the period (table 25).

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or in terms of nutrient composition. There are numerous types of fertilizer used in Korea including ammonium sulfate, urea, fused magnesium phosphate, fused superphosphate, potassium chloride, potassium sulfate, and compound fertilizers. In terms of nutrient composition, there are three: nitrogenous, phosphorus, and potassium fertilizers.

[31] Song, Jin Ho, "On the Korea Fertilizer Industry", (Seoul, Korea: The Kunsul Co., Ltd., 1986), p. 8.

TABLE 24

PRODUCTION OF FERTILIZER BY NUTRIENT COMPOSITION
(in thousand tons and percentage of the total)

| | Total | Nitrogen | | Phosphorus | | Potassium($K_2O$) | |
|---|---|---|---|---|---|---|---|
| | Production | Production | % of total | Production | % of total | Production | % of total |
| 1962 | 37 | 37 | 100 | - | - | - | - |
| 1965 | 75 | 75 | 100 | - | - | - | - |
| 1968 | 485 | 322 | 66.4 | 121 | 24.9 | 42 | 8.7 |
| 1970 | 590 | 401 | 68.0 | 139 | 23.6 | 50 | 8.5 |
| 1975 | 860 | 583 | 67.8 | 195 | 22.7 | 82 | 9.5 |
| 1980 | 1,330 | 729 | 54.8 | 494 | 37.1 | 107 | 8.0 |
| 1983 | 1,227 | 595 | 48.5 | 458 | 37.3 | 174 | 14.2 |
| 1984 | 1,394 | 685 | 49.1 | 494 | 35.4 | 215 | 15.4 |
| 1985 | 1,412 | 686 | 48.6 | 493 | 34.9 | 233 | 16.5 |
| Annual growth 1970-85 (%) | 6.0 | 3.6 | - | 8.8 | - | 11.3 | - |

Source: Economic Planning Board, Major Statistics of Korean Economy, various issues.

## Marketing and Pricing Systems

The distribution and pricing mechanisms of fertilizer in Korea are unique. For the period 1962-82, all fertilizer for domestic use was purchased by the government and distributed to farmers through the National Agricultural Cooperatives Federation (NACF). The amount of fertilizer produced over and above the government purchases (i.e., domestic consumption) was marketed directly in international markets. Fertilizer for domestic consumption has been priced under two different pricing systems. The price paid to producers is determined by negotiations between the government and fertilizer companies on an individual basis. The government takes into account the production costs of each com-

TABLE 25

DOMESTIC CONSUMPTION OF FERTILIZER BY NUTRIENT COMPOSITION
(in thousand tons and percentage of the total)

| | Total | Nitrogen | | Phosphorus | | Potassium($K_2O$) | |
|---|---|---|---|---|---|---|---|
| | Consumption | Consumption | % of total | Consumption | % of total | Consumption | % of total |
| 1962 | 60 | 20 | 33.3 | 40 | 66.7 | - | - |
| 1965 | 393 | 218 | 55.5 | 123 | 31.3 | 52 | 13.2 |
| 1968 | 478 | 286 | 59.8 | 121 | 25.3 | 71 | 14.9 |
| 1970 | 563 | 356 | 63.2 | 124 | 22.0 | 83 | 14.7 |
| 1975 | 885 | 481 | 54.3 | 238 | 26.9 | 167 | 18.8 |
| 1980 | 828 | 448 | 54.1 | 196 | 23.7 | 184 | 22.2 |
| 1983 | 709 | 363 | 51.2 | 168 | 23.7 | 179 | 25.2 |
| 1984 | 762 | 394 | 51.7 | 177 | 23.2 | 191 | 25.1 |
| 1985 | 832 | 426 | 51.2 | 193 | 23.2 | 213 | 25.6 |
| Annual growth 1970-85 (%) | 5.4 | 1.0 | - | 2.7 | - | 6.3 | - |

Source: Economic Planning Board, Major Statistics of Korean Economy various issues. Estimates for 1985 were taken from Yun Kyu Chung, Korea Agriculture, NPK Consumption and APR Program, (unpublished report), (Seoul, Korea: Association for Potash Research, 1986).

pany and allows a moderate profit margin. Thus, the purchase price for one kind of fertilizer can vary among companies. This pricing system tends to undermine the producers' efficiency and cost consciousness.

The price of fertilizer sold to farmers is determined, not by market factors, but largely by policies of socioeconomic orientation such as anti-inflation, income distribution, and agricultural productivity improvement. The selling price is typically lower than the purchase price, so the government has accumulated deficits in its fertilizer account.

In order to alleviate the problems associated with the distribution and pricing systems, since 1982 the government has allowed fertilizer

companies to sell certain fertilizers (ammonium sulphate and compound fertilizer for floriculture, pomiculture and special plants) directly to consumers at market prices. The government is reducing fertilizer purchases, and is expected to fully liberalize the fertilizer industry after 1987. This will improve the industry's efficiency and international competitiveness.

## Raw Materials

The raw materials for fertilizer production in Korea include naphtha, phosphate rock, ammonium sulphate and potassium chloride. Naphtha is fully supplied by domestic petroleum refineries but the other raw materials are imported. Phosphate rock and ammonium sulphate have been imported mainly through long-term contracts with the U.S. Potassium chloride has shown the greatest import growth rate of the 3 major materials, as the use of potassium in fertilizer has increased (table 26).

## Fertilizer and Potash Outlook

Aided by the government policy of increasing food production, the Korean chemical fertilizer industry has grown continuously over the past two decades. Fertilizer self-sufficiency was achieved in 1968 and production capacity continued to grow during the 1970s, outpacing domestic demand and prompting substantial fertilizer exports.

Government involvement in the fertilizer marketing and pricing process has exacerbated the industry's current weakness. The policy of maintaining a selling price to farmers lower than the purchase price paid to producers has engendered the industry's inefficiency and has aggravated government deficits.

TABLE 26

IMPORTS AND CONSUMPTION OF MAJOR RAW MATERIALS FOR FERTILIZER
(thousand tons)

| | Naphtha Consumption | Phosphate Rock Imports | Phosphate Rock Consumption | Ammonium Sulfate Imports | Ammonium Sulfate Consumption | Potassium Chloride Imports* | Potassium Chloride Consumption |
|---|---|---|---|---|---|---|---|
| 1970 | 530 | 485 | 500 | 117 | 118 | 72 | 86 |
| 1975 | 917 | 705 | 687 | 196 | 176 | 148 | 141 |
| 1980 | 1,198 | 1,760 | 1,791 | 489 | 499 | 206 | 143 |
| 1982 | 845 | 1,540 | 1,579 | 421 | 422 | 337 | 322 |
| 1983 | 652 | 1,636 | 1,581 | 430 | 414 | 276 | 253 |
| 1984 | na | na | na | na | na | 359 | na |
| 1985 | na | na | na | na | na | 482 | na |

Source: Korea Development Bank, Industry in Korea, p. 132, and Office of Customs Administration, Statistical Yearbook of Foreign Trade, various issues.

* The data source up to 1983 differs from that for 1984-85, and import data may not be consistent.

Despite these problems, the fertilizer industry is likely to continue expanding at a moderate pace. In particular, the prospects for potash appear relatively bright. According to a study by the Association for Potash Research in Korea, there will be a substantial increase in fertilizer application over the current level of 300 kilograms per hectare. This study also indicates that fertilizer requirements for pasture land will increase by 4.6 percent a year for the 1986-91 period, contributing to the growth of the industry.[12] Furthermore, as the fertilizer composition ratio among the three nutrients improves toward the ideal level for Korean soil (40:30:30), potassium fertilizer use will increase more rapidly than that of the other two components.

Future progress of the industry will depend largely on fertilizer exports. As mentioned, liberalization of the fertilizer distribution and pricing systems will improve the industry's efficiency, contributing to its international competitiveness. According to an analysis by the United Nation's Food and Agricultural Organization (FAO), the overall world fertilizer supply will exceed demand up to 1988. However, there will be a significant shortage of potassium fertilizer in developing and centrally planned countries.[13] In the initial stage of fertilizer use, farmers tend to use only nitrogen. On land which has received little or no previous manuring, nitrogen is usually more deficient than other nutrients, and nitrogen application gives good results. But with a succession of larger crops resulting from more intensive cropping practices, phosphorus and potassium levels in the soil become depleted.[14] One can anticipate that future demand for potassium fertilizer will increase in developing countries.

Korea, which already concentrates its fertilizer exports in developing countries, should be able to expand those exports, particularly of potassium fertilizer. This potential is also encouraged by the difference in production and consumption of potassium fertilizer in Korea. As shown

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[12] Chung, Yun-Kyu, Korea Agriculture, "NPK Consumption and APR Program", unpublished report, Seoul, Korea Association for Potash Research in Korea, 1986, p. 3.

[13] Korea Development Bank, *Industry in Korea (in Korean)*, vol. 1, pp. 524-527.

[14] International Fertilizer Industry Association, *The Fertilizer Industry — The Key to World Food Supplies*, (Paris: International Fertilizer Industry Association, 1986), p. 63.

in tables 24 and 25, consumption of potassium fertilizer accounted for about 25.7 percent of the total fertilizer consumption in 1985, while its production was only 16.5 percent of the total fertilizer production. This indicates that Korea's fertilizer exports in the past were largely nitrogen and phosphorus fertilizers, and that developing countries importing fertilizer from Korea have relied on potassium to a lesser extent than has Korea. Therefore, Korea may be able to expand its exports of potassium fertilizer to developing and centrally planned countries. This will further brighten Korea's prospects for use of potash.

Unfortunately, no forecast of Korean potash demand is available. For developing countries as a whole, two forecasts of potash demands are available. The Economic Council of Canada has quoted a growth rate of six percent for developing countries, and the Canadian Transport Commission has estimated it at ten percent.[35] In view of these forecasts, together with the recent development of the Korean fertilizer industry, it is likely that Korean demand for potash will maintain moderate growth in the future.

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[35] Economic Council of Canada, *Western Transition*, (Ottawa: Economic Council of Canada, 1984), p. 104, and Canadian Transport Commision, *A Study of Factors Affecting the Marketing and Transportation of Potash*, (Ottawa: Canadian Transport Commission, 1978), p. 74.

# 5. KOREA'S FOREIGN TRADE IN MINERALS: COAL, URANIUM, AND POTASH

## Introduction

In the preceding chapter, opportunities in the Korean market for coal and uranium were identified and assessed quantitatively. It was also shown that the Korean demand for potash will maintain a moderate growth in the future. In order to formulate marketing strategies required to develop this market, one must analyze procurement procedures of the end-users of individual minerals and policies of the Korean government. In undertaking that analysis, this chapter begins with an examination of Korean trade policy pertinent to mineral trade. Korean general trading companies are examined because they play important roles in mineral trade and could become local agents for exporters. Procurement procedures and strategies of the end-users of coal, uranium and potash are also investigated together with their institutional backgrounds and pertinent government policies. Emphasis is placed on understanding the logic of Korean procedures so future directions can be envisaged. Finally, an attempt is made to discern some common features of mineral procurement procedures employed by various end-users, which will help in developing marketing strategy.

## An Overview of Korea's Trade and Import Policy

With the constraints of a poor endowment of natural resources, a low level of capital accumulation, and a small domestic market, Korea has to rely on international trade and especially exports as a major source of development. In an earlier stage of its export-oriented development strategy, Korea introduced import restrictions to protect infant industries and its balance of payments. Korea took a stern attitude towards imports in the 1960s, prohibiting imports of many items and imposing high tariffs on others. Import licences were granted on the condition that exports would result. Korea began to ease its import restrictions as the economy developed.

This import liberalization trend began after Korea became a member of the GATT (the General Agreement on Tariffs and Trade) in 1967.

Prior to 1967 the government had applied a so-called "positive list system" under which all imports were banned except for items specifically designated. In 1967, the government introduced a "negative list system" still in effect.[1] Under the negative list system, all traded goods are classified into three categories: automatic approval items, restricted items, and prohibited items. The Minister of Trade and Industry issues an Annual Export-Import Notice each year covering the period July 1 - June 30. This notice contains the list of items to be restricted or prohibited for export or import according to the Customs Cooperation Council Nomenclature (CCCN).[2]

Automatic approval items, which are not listed in the export-import notice, can be exported or imported freely. Restricted items can be exported or imported only upon prior approval from the Minister of Trade and Industry. In order to obtain approval, importers or exporters of restricted items must provide recommendations from the trade associations to which they belong. Approval to import restricted items is largely a policy matter determined by the government for its own purposes. Items prohibited from export or import are specified by pertinent laws, and such items are rather few in number.

In 1978, the government began to accelerate trade liberalization by decreasing the number of restricted import items. The ratio of restricted items to total import items decreased from 46.1 percent in 1978 to 8.5 percent in 1986. There are 7915 import items listed in the 8-digit code of CCCN, and 670 (i.e. 8.5 percent) of these items were restricted as of 1 July 1986.[3] The government plans to further decrease this ratio to 4.8 percent by 1988.[4]

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1 Korea Exchange Bank, *Businessman's Guide to Korea*, (Seoul, Korea: Korea Exchange Bank, 1984) p. 123.

2 Korea plans to convert the CCCN to the Harmonized Commodity Description and Coding System (HS) by 1987. The latter is a new format of product classification used by advanced countries including the U.S., Japan and Canada.

3 Bank of Korea, "Important Contents of Import-Export Notice, July 1, 1986 to June 30, 1987", *Weekly Bulletin of Domestic and International Economies*, no. 1270, June 6, 1986.

4 Korea Exchange Bank, *Businessman's Guide to Korea*, pp. 126-127.

In summary, the thrust of Korea's trade policy is import liberalization. Rapid growth of the economy and an export-oriented development strategy will undoubtedly open the Korean economy further to foreign goods including minerals. Along with its import liberalization efforts, the government wants to diversify import sources to ease Korea's dependence on a few specific markets and to remedy imbalances in bilateral trade.

Trade liberalization and import diversification could have particular importance for minerals. As a result of an emphasis on manufacturing and an export-oriented development strategy, the Korean mineral sector has been losing its comparative advantage. To maintain the indigenous mineral sector and to revive its declining comparative advantage, the government has used several policies, including mineral import restrictions. However, Korea recognizes the limitations of its indigenous supply of mineral resources and is now promoting mineral import liberalization and diversification. Of the 64 mineral items imported in 1985, only one item, lead, was a restricted item.[5] On 1 July 1986, all minerals became automatic approval items.[6]

## The Korean Tariff System

The use of tariffs as a policy tool has expanded steadily as Korea's imports have increased. In 1984, 1909 import items out of a total of 7915 were subject to tariffs.[7] According to their application order, tariffs in Korea fall under four categories:

- the conventional tariff which in turn contains the GATT conventional tariff for designated nations and the conventional tariff for developing countries;
- the elastic tariff;

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[5] Ministry of Energy and Resources, *Status of Demand and Supply of Minerals, 1985*, (Seoul, Korea: Ministry of Energy and Resources, 1986), p. 133.

[6] This information was provided by the Korean Non-Ferrous Metals Association.

[7] Korea Exchange Bank, *Businessman's Guide to Korea*, p. 127.

- the general tariff;
- the temporary tariff.

When both the general and temporary tariffs are specified for an item, the latter is applied.[8] Although Korea has acceded to GATT, only a limited number of tariffs are subject to GATT regulations. Under the elastic tariff system, tariffs can be adjusted as expediency dictates.

The Korean tariff policy is based on two principles: low tariffs for necessities and high levies for luxury items; and low tariffs for raw materials and high tariffs for processed goods. Under these principles, the tariff rates range from zero for goods for re-export and some raw materials, to 150 percent for non-essential consumer items.[9] The Korean government reformed the tariff system in 1967 and again in 1976 with the effect of lowering tariff rates. Since 1983, Korea has undertaken further steps to reduce tariffs rates and, as a result, the average tariff rate decreased from 22.6 percent in 1983 to 20.6 percent in 1984, and is expected to decrease to 16.9 percent by 1988.

Custom duties are imposed on minerals upon their arrival at a Korean port. For most minerals two tariff rates - general and temporary - are specified. General rates range from five to twenty percent with the majority at five percent; temporary rates are either zero or one percent.[10] As indicated, if both general and temporary rates are specified for a mineral, only the latter is applied.

## Import Agents: General Trading Companies

In order to operate an export/import business in Korea, a company must obtain a licence from the Minister of Trade and Industry and also join the

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8 Korea Customs Research Institute, *Customs Administration in Korea*, (Seoul: Korea Customs Research Institute, 1985), pp. 40-42.

9 Park, Jong-Soo, *A Study on the Long-Term Tariff Policy of Korea*, unpublished M.A. thesis at Sung Kwan University, Seoul, Korea, 1981, p. 34.

10 Ministry of Energy and Resources, *Status of Demand and Supply of Minerals, 1985*, (Seoul, Korea: The Ministry of Energy and Resources, 1986)p. 134.

Korean Traders Association. If a non-Korean citizen wants to start an export-import business, he has to obtain approval from the Foreign Trade Committee of the Ministry of Trade and Industry. In order to retain their export-import business licences, traders must in principle export more than US$1 million worth of goods over each 12-month period. The number of licensed export-import companies has increased rapidly, jumping from 816 companies in 1979 to 2474 companies a decade later.[11]

Among export-import companies, general trading companies have played a critical role in facilitating Korea's trade. They are established with various forms of government assistance. In order to be licensed as a general trading company, a company should meet the following minimum criteria:

- paid-in capital of $2 billion won (Korean currency), about US$2.5 million;
- annual exports amounting to two percent of total Korean exports;
- five export items each over US$1 million a year;
- 20 overseas branch offices;
- public offering of the company's stocks.[12]

Up to 1984, ten trading companies met these requisites, and since then, only nine companies have been maintaining the status of general trading company.

From these licensing criteria it can be seen that the emphasis of government policy toward general trading companies has been placed on export promotion. It should be noted there is no requirement that would promote functional diversification of trading companies into such areas as finance, insurance or transportation. As a result, Korean trading companies are not in general possess the ability to provide finance through trade credits, direct loans and loan guarantees. In contrast,

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[11] Cho, Dong-Sung, *Korean General Trading Companies*, (Seoul, Korea: Bubmoon Co., 1983), vol. I, p. 12.

[12] Cho, Dong-Sung, *Korean General Trading Companies*, p. 12. Cho, Dong-Sung, "Can the General Trading Company be Transplanted?" *Korean Business Journal*, vol. 18, no. 4 (December 1984), pp. 52-85. For a detailed analysis of Korean general trading companies, see Cho, Dong-Sung, Korean General Trading Companies, vol. I and II.

Japanese general trading companies undertake trade-financing functions. By limiting the number of general trading companies and by providing assistance for them, the government has maintained its control over export industries, facilitating the achievement of export objectives.

General trading companies in Korea possess a unique combination of expertise and information on market opportunities for both imports and exports, as well as the ability to absorb some of the risks inherent in trade through the wide range of products they handle. Acting in essence as trade intermediaries, these companies are fully acquainted with large-scale operations involving physical distribution, transportation, warehousing, and marketing with respect to both imports and exports.

The importance of the export role played by Korea's general trading companies is seen in the increased value of exports undertaken by the ten trading companies: from US$739 million in 1975 to US$9.1 billion in 1981, a 52 percent annual growth rate. This compares with a 25 percent annual growth rate for total exports over the same period. As a result, exports undertaken by these ten companies in 1981 accounted for 44 percent of Korea's total exports of US$21 billion.[13]

Although Korean general trading companies have emphasized exports and export promotions in the past, their role in promoting imports has been expanding in keeping with Korea's import liberalization. In 1975, for instance, only 0.4 percent of the total Korean imports was managed by general trading companies, but by 1981 the proportion had increased to 7.0 percent.[14] General trading companies consolidate scattered, relatively small-scale orders for imports into a commercial lot. They also undertake import promotion activities and provide marketing surveys for foreign producers and limited trade credits to end-users. Furthermore, most Korean general trading companies are members of large conglomerated business groups. Some conglomerates have companies that are end-users of certain imports, or have import distributional systems serving the entire country. Since the first oil crisis, general trading companies in Korea have been performing important roles in im-

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[13] Cho, Dong-Sung, "Can the General Trading Company be Transplanted?", p. 59.

[14] Cho, Dong-Sung, *Korean General Trading Companies*, vol. I, p. 325, and Cho, Dong-Sung, *The Future Direction of Korean General Trading Companies*, (Seoul, Korea: Institute of Management Research, Seoul National University, 1981), p. 78.

porting minerals, and have been increasingly involved in overseas resource development, an issue examined in the next chapter.

Korean general trading companies have been active as agents for various foreign mineral producers. Significant advantages can be derived from using trading companies as agents rather than dealing directly with end-users. Trading companies have experience, expertise and information systems that aid in import operations. If international contracts are breached, or if a contingency or dispute arises in international trade, trading companies are well equipped to handle such problems with the help of their foreign branches and information channels. In situations where minerals are imported on a free-on-board (FOB) basis, general trading companies are in a better position than end-users to arrange vessels and negotiate freight rates.[15]

A key difference between Korean and Japanese general trading companies involves their agency services. In general, Korean trading companies provide agency services to sellers, while Japanese trading companies are buyers' agents. Thus, Japanese trading companies are the buying principals and receive commission from domestic end-users, whereas Korean companies rely on commission from foreign sellers.[16] It appears that Korean trading companies lack the financial capacity to be principal buyers. Furthermore, the end-users for some minerals are government-owned corporations, which are prohibited by their regulations from reimbursing commission to agents. It appears that, unlike their Japanese counterparts, Korean trading companies do not collaborate with end-users or among one another when they approach foreign mineral suppliers.

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[15] It should be noted that Korean general trading companies were not generally involved in mineral imports until the mid-1970s, particularly in the area of nonferrous minerals. As a result, some nonferrous minerals are still being imported through Korean branches of foreign general trading companies. Recently, however, Korean general trading companies have been penetrating the nonferrous minerals market.

[16] For the role and practices of Japanese trading companies in importing minerals, see P. J. Szabo, "Role of the Japanese Trading Company in Setting World Coal Price", *Mining Engineering*, January 1985, pp. 31-33.

## Imports of Minerals

As shown in table 27, Korea's imports of mineral products (excluding oil and gas), base metals and articles thereof, and fertilizers increased in value at an annual rate of 7.7 percent for the period 1980-85, amounting to US$4.4 billion in 1985.[17] Imports of coal increased at the highest rate of 18.4 percent per year for the same period.

Table 28 shows Canada's share in the total Korean imports of minerals and their products. This share increased by 13.5 percent per year from 1980 to 1985, a gain attributed to rapid increases in imports of sulphur, asbestos and coal. At the same time, Korea's imports of base metals and their products from Canada decreased by 7.0 percent annually, in spite of a 4.6-percent annual increase in Korean imports of base metals and their products. This suggests that Canadian base metal exporters failed to take advantage of an opportunity for increasing sales. Canada's export record for potash was reasonably satisfactory, at 4.5 percent annual growth.

Although Korea's overall imports of minerals and their products from Canada have increased by 13.5 percent a year since 1980, Canada has fared poorly compared to competitors. As shown in table 29, Canada accounted for only 8.7 percent of total Korean imports of minerals and their products in 1985. Although one hopeful sign for Canada is that its overall share has recently shown gradual improvement, Canada's export performance in base metals and their products has been particularly poor. The Canadian share declined from 2.5 percent in 1980 to 1.4 percent in 1985. Further in-depth research is required to analyze the Korean market for base metals.

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[17] The present study deals with anthracite, steam and coking coal separately. Only the CCCN classifies coal into these three categories. Unfortunately mineral import data based on the CCCN are not available prior to 1980. According to the CCCN, "mineral products" include salt, sulphur, earths and stone, plastering materials, lime and cement, metallic ores, and metallic fuels (coal, oil and gas). "Metallic ores" include steel and nonferrous mineral ores. "Base metals and their products" include iron and steel, copper, nickel, aluminum, magnesium, beryllium, lead, zinc, tin, and other base metals employed in metallurgy and their articles. Finally, fertilizers include nitrogen, phosphate and potassium fertilizers.

TABLE 27

KOREA'S IMPORTS OF MINERAL PRODUCTS*
(EXCLUDING OIL AND GAS)
(U.S. $ million)

| | 1980 | 1981 | 1982 | 1984 | 1985 | Annual Growth(%) 1980-85 |
|---|---|---|---|---|---|---|
| Mineral products | 1,084 | 1,570 | 1,533 | 1,551 | 1,938 | 12.3 |
| Sulphur | 49 | 53 | 55 | 57 | 79 | 10.0 |
| Asbestos | 15 | 18 | 18 | 21 | 18 | 3.7 |
| Metallic ores | 361 | 490 | 484 | 504 | 552 | 8.9 |
| Coal | 448 | 818 | 785 | 726 | 1042 | 18.4 |
| Others | 211 | 191 | 191 | 243 | 246 | 3.1 |
| Base metals and their products | 1,898 | 1,957 | 1,735 | 2,590 | 2,377 | 4.6 |
| Iron & steel and articles thereof | 1,378 | 1,386 | 1,173 | 1,823 | 1,666 | 3.1 |
| Copper and articles thereof | 127 | 150 | 161 | 196 | 189 | 8.3 |
| Nickel and articles thereof | 26 | 33 | 24 | 28 | 40 | 9.0 |
| Aluminum and articles thereof | 193 | 219 | 207 | 331 | 279 | 7.6 |
| Lead and articles thereof | 36 | 27 | 23 | 21 | 26 | -6.7 |
| Zinc and articles thereof | 8 | 10 | 9 | 32 | 18 | 17.6 |
| Others | 107 | 102 | 111 | 130 | 159 | 8.2 |
| Fertilizers | 37 | 42 | 62 | 50 | 60 | 10.1 |
| Total Mineral Imports | 3,013 | 3,569 | 3,330 | 4,191 | 4,375 | 7.7 |
| Total Imports | 22,292 | 26,131 | 24,251 | 30,631 | 31,136 | 6.9 |

Source: Office of Customs Administration, Korea, Statistical Yearbook of Foreign Trade, (Seoul, Korea: office of Customs Administration), various issues.

* Categorized using the CCCN classification.

TABLE 28

KOREA'S IMPORTS OF MINERAL PRODUCTS*
(EXCLUDING OIL AND GAS) FROM CANADA,
(U.S. $ million)

| | 1980 | 1981 | 1982 | 1984 | 1985 | Annual Growth(%) 1980-1985 |
|---|---|---|---|---|---|---|
| Mineral products | 125.1 | 172.8 | 201.4 | 250.6 | 308.3 | 19.8 |
| Sulphur | 23.9 | 31.3 | 28.3 | 35.5 | 63.7 | 21.6 |
| Asbestos | 2.1 | 2.8 | 2.5 | 6.6 | 7.3 | 28.3 |
| Metallic ores | 26.4 | 23.0 | 29.8 | 38.5 | 14.0 | -13.5 |
| Coal | 71.1 | 114.0 | 140.7 | 170.0 | 223.1 | 25.6 |
| Others | 1.6 | 1.7 | 0.1 | - | 0.2 | - |
| Base metals and their products | 47.9 | 42.3 | 46.1 | 36.9 | 34.2 | -7.0 |
| Iron & steel and articles thereof | 9.4 | 4.7 | 10.6 | 3.3 | 3.0 | -25.6 |
| Copper and articles thereof | 3.0 | 7.1 | 2.1 | 7.1 | 1.1 | -22.2 |
| Nickel and articles thereof | 11.3 | 4.4 | 8.1 | 7.9 | 8.5 | -5.9 |
| Aluminum and articles thereof | 22.7 | 25.3 | 24.2 | 15.7 | 18.2 | -4.5 |
| Lead and articles thereof | 1.3 | 0.2 | 0.1 | 0.4 | 0.1 | -67.0 |
| Zinc and articles thereof | - | - | - | 2.4 | 3.1 | - |
| Others | 0.2 | 0.6 | 1.0 | - | 0.2 | - |
| Fertilizers | 26.9 | 37.0 | 37.0 | 33.5 | 33.5 | 4.5 |
| Total min'l imports | 199.9 | 252.1 | 284.5 | 321.0 | 376.0 | 13.5 |
| Total imports from Canada | 378.4 | 530.7 | 485.0 | 637.4 | 630.2 | 10.7 |
| % of Total** | 52.8 | 47.5 | 58.7 | 50.4 | 59.7 | - |

Source: Office of Customs Administration, Statistical Yearbook of Foreign Trade.

* Categorized by CCCN classification.
** percent of Canadian mineral imports as % of total Canadian imports.

TABLE 29

CANADIAN SHARES OF KOREA'S IMPORTS OF MINERAL PRODUCTS* (EXCLUDING OIL AND GAS)
(percent)**

| | 1980 | 1981 | 1982 | 1984 | 1985 |
|---|---|---|---|---|---|
| Mineral products | 11.5 | 11.0 | 13.1 | 16.2 | 15.9 |
| Sulphur | 48.8 | 59.1 | 51.5 | 62.3 | 80.6 |
| Asbestos | 14.0 | 15.6 | 13.9 | 31.4 | 40.6 |
| Metallic ores | 7.3 | 4.7 | 6.2 | 7.6 | 2.5 |
| Coal | 15.9 | 13.9 | 17.9 | 23.4 | 21.4 |
| Others | 0.8 | 0.9 | 0.1 | - | - |
| Base metals and their products | 2.5 | 2.2 | 2.7 | 1.4 | 1.4 |
| Iron & steel and articles thereof | 0.7 | 0.3 | 0.9 | 0.2 | 0.2 |
| Copper and articles thereof | 2.4 | 4.7 | 1. | 3.6 | 0.6 |
| Nickel and articles thereof | 43.5 | 13.3 | 33.8 | 30.4 | 21.3 |
| Aluminum and articles thereof | 11.8 | 11.6 | 11.7 | 4.7 | 6.5 |
| Lead and articles thereof | 3.6 | 0.7 | 0.4 | 1.9 | 0.4 |
| Zinc and articles thereof | - | - | - | 7.5 | 17.2 |
| Others | 0.2 | 0.6 | 0.9 | - | 0.1 |
| Fertilizers | 72.7 | 88.1 | 59.8 | 67.0 | 55.8 |
| Total min'l imports | 6.6 | 7.1 | 8.5 | 7.7 | 8.7 |
| Total Canadian imports | 1.7 | 2.0 | 2.0 | 2.1 | 2.0 |

Source: Office of Customs Administration, Statistical Yearbook of Foreign Trade.

* Categorized by CCCN classification.
** As percent of all Korean imports in that category.

## Procurement of Anthracite

Coal is certainly one of Korea's most critical minerals, with demand increasing rapidly and expected to continue at an annual growth rate of 4.9 percent until 2001. Most of the coal demand has to be met by imports, which has important implications for Canada. Canada exported US$223 million worth of coal to Korea in 1985 (table 28), but Canadian coal accounted for less than 20 percent of total Korean coal imports until 1984 when the Canadian share reached 23.4 percent (table 29). It decreased to 21.4 percent in 1985. Given the importance of the Korean market for Canadian coal, Korea's procurement procedures for individual types of coal (anthracite, steam and coking) will now be examined.

Although Korea produces anthracite coal, its domestic supply cannot match demand, and substantial amounts have been imported since 1978. During the 1980-85 period, Korea imported an average of 2.7 million tons of anthracite coal annually (table 30). The main importer is the Korea Coal Corporation, a government-owned corporation. According to an official of the corporation, it is expected Korea will import two to three million tons of anthracite coal annually in the foreseeable future.[18] As mentioned in chapter 4, anthracite produced in Korea is poor in quality, having a calorific value of about 4000 kcal/kg. Household use of anthracite requires about 4500 kcal/kg of calorific value; therefore, in order to augment the calorific value, indigenous anthracite is mixed with imported anthracite.

Anthracite coal is an important source of household energy for both cooking and space heating, and it takes a significant portion of the household budget, particularly for low income families. Hence, the government is obliged to maintain supply at a stable price; failure to perform adequately in this respect would have serious political repercussions. The government determines annual import amounts of anthracite through its Coal Import Review Committee, and imports through its Korea Coal Corporation. The level of anthracite imports is also affected by winter weather conditions. Because the import requirements are determined mainly by political considerations and weather conditions, they vary widely over time. Long-term contracts are not suitable for

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[18] This information was provided by a senior official of the Korea Coal Corporation in an interview with the author. This information is quite consistent with the forecast of imports of anthracite coal examined in chapter 4.

Korea's imports of anthracite because they cannot respond to the fluctuations of demand. Thus, anthracite coal is obtained mainly through short-term contracts or spot-market purchases.

Korea has been importing anthracite from many countries, including the United States, Australia, India, Hong Kong, and South Africa, but not from Canada until 1985, when it imported 19 thousand tons, less than one percent of total Korean imports. However, Korea agreed to import 30 thousand to 60 thousand tons of anthracite coal from Canada during 1986.[19]

One reason Korea had not imported anthracite from Canada prior to 1985 was price. The average CIF (cost, insurance and freight) price of Canadian anthracite coal, estimated by the ratio of annual total value to weight, was US$54.47 a ton in 1985, compared to US$51.90 a ton from other countries; the corresponding price from Australia was US$44.78 a ton.[20] A group of Korean businessmen actively involved in coal imports have pointed out that Canada's environmental regulations, together with inconsistent and unexpected governmental measures such as moratoriums, have hurt the Canadian export potential.[21] The main reason Korea agreed to import a substantial amount of anthracite coal from Canada in 1986 appears to have been Canadian diplomatic pressure, prompted by Korea's large trade surplus with Canada.[22] Because

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[19] This was announced on May 14, 1986 during Prime Minister Mulroney's visit to Korea. *The Korean Times*, May 14, 1986, p. 1.

[20] Data for annual total value and weights of anthracite coal are taken from the *Statistical Yearbook of Foreign Trade* by the Office of Customs Administration. It should be noted that the estimated price of US$54.47 for Canadian anthracite was very close to its actual 1985 price of US$56.00 which was provided by the Korean Coal Corporation during a personal interview conducted by the author. According to business officials interviewed, the CIF price of anthracite coal from South Africa and China is about 20 to 30 percent lower than that of Canadian coal. Of course, because of the risk involved in doing business with these countries, Korean companies are reluctant to commit themselves exclusively to these countries through long-term contracts.

[21] This was expressed by a number of senior officials of general trading companies and end-users of coal.

[22] This was also an opinion expressed by an official of the Korean Coal Corporation.

Korea imports anthracite coal largely for political and social purposes. diplomatic pressure can be judiciously employed to facilitate Canadian participation in the Korean anthracite market.

## Procurement of Steam Coal

As shown in table 30. Korea's imports of steam coal increased from half a million tons in 1980 to nine million tons in 1985. Steam coal is used mainly for thermal power and by the cement industry. The cement industry used more steam coal than did thermal power production until 1983, but by 1985 power generation accounted for more than 70 percent of steam coal imports.[23]

Table 30 also indicates that Korea has been importing steam coal predominantly from three countries: Australia, Canada, and the United States. Canada is not a major supplier, compared to Australia, and during the period 1982-85, the Canadian share of Korean imports decreased while the Australian share increased, with Canada accounting for 18.5 percent in 1985, and Australia for 53.3 percent. The USA supplied about three percent each year.

The low Canadian market share as compared to Australia's probably reflects the lower average quality of Canadian coal and its higher import price.[24] For steam coal as well, as shown in table 31, the CIF prices from Canada, estimated by the ratio of value to weight, have been significantly higher than Australia's during the 1980-85 period, when the Canadian price was on average US$66.15 a ton and the Australian price was US$59.27.[25]

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[23] This information was obtained from an internal document provided by a senior official of a general trading company.

[24] Ministry of Energy and Resources, *Status of Demand and Supply of Minerals, 1984*, p. 93.

[25] Average CIF prices of bituminous coal from Canada, Australia and the U.S. were estimated by the Ministry of Energy and Resources respectively at US$70.61, US$63.14, and US$73.58 for the period 1980-85. This shows that the Canadian price of bituminous coal is about 12 percent higher than the Australian price. The Ministry of Energy and Resources, *Status of Demand and Supply of Minerals, 1984 and 1985*.

TABLE 30

KOREA'S IMPORTS OF COAL (ANTHRACITE, COKING, AND STEAM) AND SHARES OF CANADA, AUSTRALIA, AND USA
(1000 tons)

| | 1980 | 1981 | 1982 | 1984 | 1985 |
|---|---|---|---|---|---|
| Anthracite | 2385 | 5204 | 2453 | 819 | 2659 |
| Steam Coal | 482 | 1421 | 2600 | 5873 | 9006 |
| From Canada | 14 | 36 | 590 | 1157 | 1664 |
| (%) | (2.9) | (2.5) | (22.7) | (19.7) | (18.5) |
| From Australia | 26 | 51 | 445 | 3067 | 4800 |
| (%) | (5.4) | (3.6) | (17.1) | (52.2) | (53.3) |
| From USA | 32 | 544 | 52 | 55 | 534 |
| (%) | (6.6) | (38.3) | (2.0) | (0.9) | (5.9) |
| Coking Coal | 4428 | 5824 | 6439 | 6320 | 8125 |
| From Canada | 1142 | 1585 | 1616 | 1727 | 2348 |
| (%) | (25.8) | (27.2) | (25.1) | (27.3) | (28.9) |
| From Australia | 2385 | 3038 | 3414 | 2930 | 3016 |
| (%) | (53.9) | (52.2) | (53.0) | (46.4) | (37.1) |
| From USA | 882 | 903 | 1267 | 1619 | 2089 |
| (%) | (19.9) | (15.5) | (19.7) | (25.6) | (25.7) |
| Bituminous | 4910 | 7245 | 9039 | 12193 | 17131 |
| From Canada | 1156 | 1621 | 2206 | 2884 | 4012 |
| (%) | (23.5) | (22.4) | (24.4) | (23.7) | (23.4) |
| From Australia | 2411 | 3089 | 3859 | 5997 | 7816 |
| (%) | (49.1) | (42.6) | (42.7) | (49.2) | (45.6) |
| From U.S.A. | 914 | 1447 | 1319 | 1674 | 2623 |
| (%) | (18.6) | (20.2) | (14.6) | (13.7) | (15.3) |

Source: Office of Customs Administration, Statistical Yearbook of Foreign Trade, various issues.

TABLE 31

VALUE OF KOREA'S IMPORTS OF COAL (ANTHRACITE, COKING, AND STEAM) AND SHARES OF CANADA, AUSTRALIA, AND THE USA (U.S. $ million)*

| | 1980 | 1981 | 1982 | 1984 | 1985 |
|---|---|---|---|---|---|
| Anthracite | 150 | 307 | 165 | 46 | 138 |
| Steam coal | 32 | 105 | 164 | 263 | 397 |
| From Canada | 1.0 | 4.0 | 31.4 | 56.0 | 77.5 |
| (%) | (3.1) | (3.8) | (19.1) | (21.3) | (19.5) |
| From Australia | 1.9 | 3.7 | 28.5 | 134.5 | 205.6 |
| (%) | (5.9) | (3.5) | (17.4) | (51.1) | (51.8) |
| From USA | 2.2 | 38.4 | 3.5 | 2.5 | 24.2 |
| (%) | (6.9) | (36.6) | (2.1) | (1.0) | (6.1) |
| Coking coal | 240 | 379 | 437 | 400 | 493 |
| From Canada | 70.0 | 109.9 | 109.2 | 114.0 | 144.6 |
| (%) | (29.2) | (29.0) | (25.0) | (28.5) | (29.3) |
| From Australia | 123.6 | 181.5 | 219.1 | 173.3 | 170.0 |
| (%) | (51.5) | (47.9) | (50.1) | (43.3) | (34.5) |
| From USA | 56.4 | 69.4 | 98.1 | 109.4 | 138.4 |
| (%) | (23.5) | (18.3) | (22.4) | (27.4) | (28.1) |
| Bituminous | 272 | 484 | 601 | 663 | 890 |
| From Canada | 71.0 | 113.9 | 140.6 | 170.0 | 222.1 |
| (%) | (26.1) | (23.5) | (23.4) | (25.6) | (25.0) |
| From Australia | 125.5 | 185.2 | 247.6 | 307.8 | 375.6 |
| (%) | (46.1) | (38.3) | (41.2) | (46.4) | (42.2) |
| From USA | 58.6 | 107.8 | 101.6 | 111.9 | 162.6 |
| (%) | (21.5) | (22.3) | (16.9) | (16.9) | (18.3) |

Source: Office of Customs Association, Statistical Yearbook of Foreign Trade, various issues.

* The value of imports is based on the CIF price.

It is interesting to see that Canadian bituminous coal is not at a disadvantage because of ocean transportation costs. The ocean transportation cost of bituminous coal from Canada was estimated at US$9.87 a ton during the period 1984-85 as compared to US$10.46 and US$12.26 respectively from Australia and the USA.[26] Canada's ocean transportation costs are lower than Australia's because, even though the shipping route is longer, more empty ocean liners returning to Korea are available from Canada's Pacific coast than from Australia.[27] This situation reflects Korea's trade surplus with Canada and the USA and its trade deficit with Australia. Substantial differences in ocean freight rates that depend on the nature of vessels give general trading companies an advantage over KEPCO and suppliers in arranging ocean transportation for coal. This advantage derives from trading companies' better information about empty vessels returning to Korea. Because steam coal is used in Korea mainly for thermal power, thermal coal procurement systems warrant attention.

## Steam Coal Procurement by KEPCO

The Korea Electric Power Corporation (KEPCO) is the authority entrusted with the generation and distribution of power in Korea. Because KEPCO is government-owned, its general policy regarding different energy sources such as oil, nuclear power and coal is consistent with the guidelines developed by the government as part of its central economic development plan. Hence, the government exerts significant influence on KEPCO's steam coal procurement. In implementing its mandate of

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[26] *Ibid.*

[27] This contrasts with an estimate that indicates Japan's transport cost advantage of coal from Australia over major alternative sources (presumably including Canada) is probably about ten percent of the FOB price. For this estimate, see J. Crawford and S. Okita, *Raw Materials and Pacific Economic Integration*, (Vancouver, B.C., University of British Columbia, 1978), p. 159. Ben Smith also argues that international freight costs increase rapidly as shipping routes lengthen. See Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade", in S. Harris and T. Okuta (ed), *Australia, Japan and Energy Coal Trade*, (Canberra, Australia: Australia-Japan Research Centre, 1982), p. 172.

energy supply and securing its energy sources, KEPCO consults with the Ministry of Energy and Resources, which is in charge of KEPCO.

As indicated earlier, consumption and hence imports of steam coal are expected to increase from a half million tons in 1983 to 25.8 million tons in 2001 (table 18). Given such major increases in demand for steam coal, KEPCO has undertaken the challenge of obtaining steam coal by means of direct importation. It has not participated in the overseas development of steam coal despite having undertaken overseas uranium development. Under a direct import policy, the spot-market transaction is ruled out because spot-market prices are highly variable and spot-market supplies are perceived as small in scale and less reliable than long-term supplies.

Because KEPCO possesses a captive demand for its products, its major interest lies in obtaining a stable, long-term coal supply. KEPCO therefore relies solely on long-term contracts for its direct importation of steam coal. Not only do long-term contracts provide greater security of supply, but they also provide other advantages over short-term or spot market contracts. Long-term contracts are likely to result in larger quantities being traded between individual buyers and sellers at a particular time, reducing the number of transactions and shippings. This reduces information, transaction and transportation costs.[28] The buyer of steam coal also favours long-term contracts because the negotiation process requires that the supplier provide detailed information on all aspects of the mining operation.[29]

In securing a long-term supply of steam coal, KEPCO's primary strategy includes supply diversification by country and mine. Given various countries' political risk and labour problems, purchases of raw materials from multiple sources should lead to a greater security of supply.

One finds that KEPCO's strategy of supply diversification is consistent with a monopsonistic approach. Because KEPCO is the sole purchaser of steam coal for thermal power generation in Korea, it will

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[28] For this and other advantages of long-term contracts over short-term contracts, see B. Smith, "Long-Term Contracts for the Supply of Raw Materials", in J. Crawford and S. Okita (ed), *Raw Materials and Pacific Economic Integration*, pp. 229-270.

[29] See D. Anderson, *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*, p. 79.

naturally attempt to take advantage of its monopsonistic position in purchasing steam coal, even though its monopsonistic power is quite limited because of small market size.[30] The monopsonistic position holds only if multiple suppliers are competing with one another. To foster competition among suppliers and, at the same, to diversify supply sources, KEPCO contacts a large number of potential suppliers worldwide, requesting letters of intent, whenever it requires additional supplies of steam coal. For instance, for the two existing coal-fired power stations together with six additional units under construction, KEPCO initially contacted 47 suppliers and finally entered into contracts with 17 suppliers: six Canadian, ten Australian, and one American.[31] As shown in table 32, the total annual amounts specified under these contracts were 6.25 million tons for the period 1984-87. Instead of choosing one or a few suppliers offering the lowest price, KEPCO chose 17, consistent with its supply diversification strategy and its desire to hold a monopsonistic position. The amount of steam coal contracted with any one supplier ranges from 200 thousand tons to 800 thousand tons. There seems to be a policy by which the contract amount with one supplier cannot exceed 800 thousand tons.[32]

It should be noted that supply diversification may decrease total procurement costs. Conventional wisdom may suggest that supply diversification would increase total procurement costs because it entails the purchase of low and high cost coal instead of low cost coal alone. But if a buyer relies solely on the country with the lowest cost, producers in that country could collude, acting as monopolists or oligopolists and raising the price. Hence, a judicious use of supply diversification pre-

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30 For an excellent and thorough analysis of the monopsonistic operation of Japanese steel mills and its implications for coking coal suppliers, see D. Anderson, *An Analysis of of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*.

31 This information was provided by a senior official of a general trading company during an interview with the author. Out of the total of 6.25 million tons, Canada's share is 33.6 percent, and the shares of Australia and the U.S. are, respectively, 53.6 percent and 12.8 percent.

32 This was provided by a senior official of the Ministry of Energy and Resources during an interview with the author.

TABLE 32
KOREA'S CONTRACT AMOUNTS OF STEAM COAL
(in 1000 tons)

| | 1983 | 1984 | 1985 | 1986 | 1987 |
|---|---|---|---|---|---|
| KEPCO* | n.a | 6,250 | 6,250 | 6,250 | 6,250 |
| Cement Mills | n.a | 2,752 | 2,813 | 3,000 | 3,600 |
| Others** | 35 | 55 | 250 | 450 | 800 |
| Total Steam Coal | n.a | 9,057 | 9,313 | 9,700 | 10,650 |

Source: Unpublished data obtained from an official of a general trading company during a personal interview conducted by the author.

* Amounts of long-term contracts.
** Others include industrial boilers for dyeing, textiles, paper, chemicals, and brick makers.

vents collusion and stimulates competition among suppliers. So a diversification strategy may in fact lower total purchase costs.[33]

KEPCO enters into long-term bilateral agreements with individual suppliers, consistent with its supply diversification strategy. The essential elements of these contracts are long-term quantity specifications and price arrangements. Typically, the contracts are in so-called "evergreen" terms, whereby they are automatically renewed unless specific objections arise. The terms and conditions of such contracts are, in principle, reviewed five years after the initial agreements. In a situation where two parties are unable to reach an agreement before the expiry date, the contract automatically extends an additional year and then terminate.[34]

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[33] This has been pointed out by David Anderson, *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*,

[34] Information on the nature of contracts and contracting procedures was obtained in personal interviews with numerous senior officials of general trading companies.

The current international coal market is a buyer's market, and the contracts into which KEPCO enters include terms and conditions favourable to it. For instance, contract periods can be extended or terminated at the buyer's (KEPCO) discretion with written notice one year before expiry. While annual base tonnages are specified by contracts, KEPCO has an option to marginally vary its actual purchases. The margin was 20 percent in the 1970s, and in the 1980s it increased to 50 percent in some instances. In the event of problems with a supplier, KEPCO can secure supply from another producer, using this 50 percent variation clause. Subject to the seller's consent, KEPCO may also double the annual quantity set out in its contracts. Such a wide range of adjustments affecting purchase quantity at the buyer's option makes it difficult for suppliers to develop long-term production plans, at the same time benefiting KEPCO because it does not need to hold large buffer stocks. Suppliers carry the holding cost.

The quality of coal to be supplied is specified in the contracts. If these specifications are not fully met, the buyer (KEPCO) has the right to reject the shipment or any part of it. All costs and responsibilities incurred as a result of such a rejection are borne by the seller.

Pressure from the Korean government to utilize Korean ocean liners, and a desire to reap the benefits arising from ocean transportation, have led KEPCO to insist on stipulating contract prices in FOB rather than CIF terms. Not only do KEPCO's shipping arrangements provide support for Korean ocean liners, they also give KEPCO significant advantages over suppliers. With the wide range of adjustments for purchase quantity mentioned above, the actual tonnage delivery may be largely dictated by shipping arrangements. Adjustments may also be used as a bargaining weapon against individual suppliers.

The pricing arrangements under KEPCO's long-term contracts establish the price range and the criteria that will allow for price adjustment over time. Adjustment of contract prices is made by adjusting the "basic price", the essential element of long-term contracts. The basic price consists of the free on rail (FOR) price and other charges. The FOR price in turn includes production costs (such as labour and mining material costs) and fixed costs. The other charges are those beyond the control of the producers, such as rail freight charges, rail placement charges, stacking charges, loading charges, harbour dues, inspection fees, royalties, and harbour dredging charges.

Labour and material costs in the FOR price are escalated, respectively, by annual increases in the miners' wage rate and by rising

costs of mining materials. The other charges included in the base price are adjusted annually as changes occur in any of them.[35] It should be noted, however, that the seller bears export or similar taxes imposed by the seller's government. The FOB prices are usually expressed in the currency of the seller's country, but no provision is incorporated into the contract price for exchange rate changes.

It should be noted that frequent price adjustments over time are not necessarily desirable. Conventional wisdom may suggest that price adjustments to long-term contracts are sought by suppliers to promote stability of long-term real prices. If long-term contracts were to specify pricing arrangements upon which both parties had to agree annually, the stability of such contracts would suffer because, as indicated earlier, the buyer (KEPCO) has an option to terminate contracts upon short (one-year) notice. So there is no guarantee for suppliers that contract prices and contracts themselves will continue to justify initial investment over a reasonable period. This uncertainty may lead both sides to try to minimize dependence on one another in order to avoid the disruptive effects of contract terminations.

Finally, although contract prices are determined through negotiations between KEPCO and individual suppliers, an important clause usually included in the contract is a link in KEPCO's price and that of Japanese electric utilities. This clause states that the base price established by KEPCO and a supplier should be competitive with the prices for the same products sold to Japanese electric utilities. Although KEPCO might seek to take advantage of its monopsonistic position within Korea, it appears doubtful that KEPCO could successfully wield its monopsonistic power in the international market, because its demand is small in scale compared to Japanese demand.[36] As a result, competition among suppliers with respect to the Korean market should not be as keen as that involving the Japanese market. In some instances, partic-

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[35] Australia took advantage of this system of contract pricing. It raised railway freight rates as a means of taking economic rents. See D. Anderson, *An Analysis of Japanese Coking Coal Procurement Policy: The Canadian and Australian Experience*, p. 31.

[36] Korea's total demand for steam coal in 1991 is expected to be 6.0 million tons (Table 19), while the Japanese demand is expected to be 56 million tons in 1990. See the Ministry of Energy and Resources, *Long-Term Energy Prospects and Strategy toward the Year 2000*, p. 234.

ularly during the 1970s. Korean customers could not secure enough coal from Canadian and Australian suppliers because Korean customers received their share after the suppliers satisfied Japanese demand.[37] That is not surprising in view of the Japanese tendency to exaggerate demand and to over-contract.[38]

It is quite apparent that suppliers have not regarded KEPCO as a monopsonist, nor as a crucial purchaser, but rather, as a secondary market. With this attitude on the part of suppliers, monopsonistic exploitation is not possible. Assuming KEPCO is aware of its position in the international coal market and of Japanese monopsonistic procurement practices, the best price it can secure would seem to be the price its Japanese counterparts obtain through a monopsonistic strategy. Hence, KEPCO apparently tries to link its contract price to the Japanese price.

The Korean general trading companies play important roles in the procurement of steam coal. They act as market channels between KEPCO and foreign suppliers. They approach KEPCO to arrange long-term contracts. They communicate with foreign suppliers through overseas offices and give KEPCO information about potential suppliers. The foreign suppliers tender their preliminary proposal documents through the trading companies because KEPCO is reluctant to see foreign suppliers in the initial stages of negotiation. Trading companies help to arrange the negotiating sessions and coordinate discussions between the contracting parties. When a trading company is successful in arranging a long-term contract, it will be appointed as the agent for the project. Although trading companies simultaneously represent both the buyer (KEPCO) and the seller, they act as the seller's agent in Korea and receive commission from the seller.

If a long-term contract is settled between KEPCO and a foreign supplier without the use of agents, Korean trading companies compete fiercely among themselves to obtain an import agency. A trading com-

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[37] This was expressed by a number of senior officials of trading companies in Korea. They expressed the frustrations they experienced during negotiations with Canadian and Australian suppliers during the 1970s. Their frustrations arose because those suppliers did not pay much attention to Korean customers.

[38] Anderson, D. L., *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*, pp. 75-79.

pany appointed as an import agent undertakes the operations involved in importing and supplying steam coal to KEPCO.

The actual amount of steam coal purchased may deviate considerably from the contract quantity, and depends largely on negotiations between buyer and seller. General trading companies play an important role in these negotiations.

There is no formal or even informal arrangement between general trading companies and KEPCO when trading companies approach foreign suppliers. This is quite different from the situation in Japan, where formal deals between trading companies and end-users of coal are a common practice. In the case of coking coal, for example, in order to obtain a low monopsonistic price, Japanese end-users nominate certain trading companies as market channels and informally guarantee they will receive compensation regardless of which company wins a specific order. Hence, Japanese trading companies do whatever is necessary to get the lowest price for the end-users.[39]

## Steam Coal Procurement by the Cement Industry

Cement is an energy intensive industry with energy accounting for half the total cost of cement in Korea.[40] Trading companies compete among themselves for nomination as market channelling agents. When oil prices increased, the cement industry quickly converted its calcination kilns from oil to steam coal fuel. The cement industry is highly competitive, both domestically and internationally. There are eight cement producers in Korea, with production capacity exceeding domestic demand; about 19 percent of the cement produced must be exported.[41] The main concern of the cement industry with respect to steam coal procurement has been with price; market access or supply security of steam coal has been a secondary concern. Under these circumstances, cement com-

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[39] Szabo, Peter J., "Role of the Japanese Trading Company in Setting World Coal Prices", *Mining Engineering*, June 1985, pp. 31-33.

[40] This information was provided by a senior official of a cement company during a personal interview conducted by the author.

[41] Korea Development Bank, *Industry in Korea*, p. 115.

panies have understandably purchased steam coal through spot markets or short-term arrangements.

When the industry was converting from fuel oil to steam coal at the beginning of the 1980s, the international steam coal market was already showing signs of depression; the market was moving toward a buyer's market and coal prices were declining. The expectation of further declines in coal price prevented buyers from making commitments to long-term contracts. Furthermore, because the industry is highly competitive, the demand for cement is highly elastic. Therefore, procurement of steam coal with stable long-term contracts would be disadvantageous for the purchaser because long-term contracts eliminate the option to respond to a reduction in demand for cement.

It is interesting to see that, although contracts are typically annual, cement companies tend to purchase steam coal continuously from the same mines. This indicates that initial market penetration is difficult and that personal relationships are vitally important when doing business in Korea.

Cement producers seek to diversify sources of steam coal. For instance, the existing eight companies purchased steam coal from 31 mines in 1985, contract quantities ranging from 11 thousand to 340 thousand tons. The largest proportion of annual purchases is from South Africa, followed by Australia. China and Canada also export steam coal to the Korean cement industry, but are insignificant players in the market.[42] There are several reasons why cement companies purchase most of their steam coal from South Africa.[43] First, the price of South African coal is lower than that of other countries. Second, the quality specifications of South African coal are regarded as superior to other countries. Finally, more market promotion activities are undertaken by South Africa than other potential suppliers, including Canada. South African companies have branches in Korea that undertake continuous and persistent marketing activities. Canadian companies, on the other hand, occasionally send middlemen or brokers to Korea.

General trading companies are actively involved in the procurement process of steam coal for the cement industry. They arrange bar-

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[42] This information was obtained from a senior official of a general trading company during a personal interview

[43] This was learned from a number of senior officials of general trading companies and cement companies.

gaining sessions on behalf of cement companies, and manage importation and transportation procedures on a commission basis. They also act as principal buyers of steam coal and hold inventory stocks by themselves.

## Coking Coal Procurement by POSCO

In 1985, Korea imported 8.1 million tons of coking coal (table 30), and demand is expected to grow by 4.2 percent a year during the period 1984-2001, amounting to 13.1 million tons in 2001 (table 18). As shown in table 30, Korea has been importing more than 95 percent of its coking coal, mainly from Canada, Australia and the United States. The Canadian share has remain unchanged at about 26 percent since 1980. The Australian share has declined substantially, yet it still accounted for 37 percent in 1985. The American market share increased from 19.9 percent in 1980 to 25.7 percent in 1985.

As shown in table 33, CIF coking coal prices measured by value-to-quantity ratios are consistently highest for U.S. coal and lowest for Australian coal. The price of Canadian coal falls in the middle. Calculated from table 33, the average CIF price over 1980-85 was US$70.21 a ton for coal from the USA, US$65.15 from Canada, and US$58.25 from Australia. During the summer of 1986, the FOB price POSCO paid for coking coal from the U.S. ranged from US$50 to US$54 a ton, US$49 for Canadian coal, and US$42 for Australian coal.[44] These price differences reflect differences in the quality of coal from the three countries.

The Pohang Iron and Steel Company (POSCO) Ltd., a government-owned corporation responsible to the Ministry of Trade and Industry, is the sole producer of steel products in Korea. The Korean government has regarded the iron and steel industry as a key industry and has played an important role in developing POSCO's overall strategy. Although POSCO is the sole producer of steel products in Korea, it does not enjoy a captive demand for its products. The steel industry is highly competitive internationally and Korea is currently exporting about 43 percent of its steel products (table 19). Therefore, although POSCO

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[44] This information on the FOB prices of coking coal was provided by a senior official of POSCO.

TABLE 33

ESTIMATES* OF CIF IMPORT PRICES OF COAL IN KOREA
(in U.S. dollars per ton)

| | 1980 | 1981 | 1982 | 1984 | 1985 |
|---|---|---|---|---|---|
| Anthracite | 62.89 | 58.99 | 67.26 | 56.17 | 51.90 |
| Steam coal: | 66.39 | 73.89 | 63.08 | 44.78 | 44.08 |
| From Canada | 71.43 | 111.11 | 53.22 | 48.40 | 46.57 |
| From Australia | 73.08 | 72.55 | 64.04 | 43.85 | 42.83 |
| From USA | 68.75 | 70.59 | 67.31 | 45.45 | 45.32 |
| Coking coal: | 54.20 | 65.08 | 67.87 | 63.29 | 60.68 |
| From Canada | 61.30 | 69.34 | 67.57 | 66.01 | 61.58 |
| From Australia | 51.82 | 59.74 | 64.18 | 59.15 | 56.37 |
| From USA | 63.95 | 76.85 | 77.43 | 67.57 | 66.25 |
| Bituminous: | 55.40 | 66.80 | 66.49 | 54.38 | 51.95 |
| From Canada | 61.42 | 70.27 | 63.74 | 58.95 | 55.36 |
| From Australia | 52.05 | 59.95 | 64.16 | 51.33 | 48.06 |
| From USA | 64.11 | 74.50 | 77.03 | 66.85 | 61.99 |

* Derived by dividing the import value (Table 31) by its quantity (Table 30).

is government-owned, bureaucratic and political interference in its business operations do not appear to be extensive.

Under these circumstances, it is not surprising that POSCO seeks to secure a stable, long-term supply and to minimize the cost of coking coal.[45] Given the paramount importance of the steel industry for the

[45] This was expressed by a group of senior officials of POSCO during personal interviews conducted by the author. It should be noted that the objectives of POSCO's coal procurement policy are, in essence, identical to those of Japanese steel mills. For this, see D. Anderson, *An Analysis of Japanese*

achievement of Korea's ambitious economic development plans, it is understandable that central economic policy planners, as well as POSCO, have emphasized security of supply. POSCO has undertaken to ensure security of supply at minimum cost by means of direct importation and by participation in overseas development of coking coal projects.

For its direct import policy, POSCO has rejected the spot-market transaction approach, relying instead on long-term contracts, for a variety of reasons. When POSCO was created in 1973, spot-market prices were highly variable but seldom lower than long-term contract prices, and spot market was not perceived to provide adequate protection against supply interruptions. Because the development of Korea's iron and steel industry has been crucial to Korea's industrialization and economic growth, supply interruption of one of its key raw materials could have serious economic consequences. As a result, government policy makers have encouraged POSCO to buy coking coal under long-term contracts. From its own perspective, POSCO is highly capital intensive, with variable costs constituting a small portion of total costs. It therefore has a strong incentive to seek guaranteed supplies of coking coal, to avoid below-capacity operation of its plants. Finally, POSCO was developed with Japanese technology, so its business operations including coking coal procurement policy have been influenced by the Japanese steel industry which relies solely on long-term contracts.[46]

POSCO has undertaken equity investments in overseas coking coal development projects. When POSCO entered into the international coking coal market in the mid-1970s, the coking coal price was soaring. During this time Japanese steel mills, which imported more than twenty times as much coking coal as did POSCO, were overstating their demand.[47] Given the difference in market sizes, it is most likely that, if a shortage of production occurred, suppliers would satisfy their main customers (i.e. Japanese steel mills) before secondary customers such as

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*Coking Coal Procurement Policies: The Canadian and Australian Experience*, pp. 44-45.

[46] For an analysis of the coking coal procurement policy of the Japanese steel industry, see D. Anderson, *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*.

[47] For an overestimation of coking coal demands by the Japanese steel mills and its consequence, see D. Anderson, *Ibid.*, pp. 73-107.

POSCO. As a result, there was serious concern and anxiety about securing coking coal supplies. Another concern of the Korean business community as well as of POSCO during the mid-1970s, with respect to coking coal, was that foreign suppliers treated them unfairly compared to their Japanese counterparts. Korean customers were allegedly not given an adequate amount of information by and about their potential suppliers.[48] In order to overcome this concern, POSCO has undertaken equity participation in some overseas coking coal developments.

Minority equity holdings, while providing no control, do allow POSCO to obtain full information about mining costs and market conditions, thereby improving its bargaining position. Supply is also secured, at least in proportion to the share owned. Finally, equity participation reduces the likelihood of supplier collusion, although it appears unlikely that suppliers would collude against a minor customer such as POSCO. Overseas investment has reached the point where one mine (Tanoma) in the USA was developed and is operated solely by POSCO.

In securing long-term minimum-cost supply, POSCO also undertakes supply diversification by country and by mine. In 1986, POSCO entered into long-term contracts with 40 mines including six mines from Canada and 15 mines each from the USA and Australia.[49] The contract tonnages ranged from 50 thousand tons to 1.9 million tons with an average tonnage of 370 thousand tons.[50] In conjunction with KEPCO's energy procurement strategy, POSCO's diversification of coal supply sources contributes to Korea's objective of supply security. Diversification also contributes to the cost minimization objective by fostering competition among suppliers. Furthermore, coking coal quality and prices vary depending upon country and region of origin.[51] In order to minimize production costs, POSCO blends coals of various qualities to

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[48] This type of resentment towards overseas supplies still prevails in Korea. This was easily discernible during interviews with senior officials of trading companies.

[49] This was provided by a senior official of POSCO during a personal interview conducted by the author.

[50] This was provided by a senior official of a general trading company.

[51] For an explanation of coking coal quality for those outside the industry, refer to David Anderson, *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*, pp. 21-24.

yield an acceptable coke at the lowest cost. In other words, POSCO blends the best quality, most expensive coal from the USA, with middle-range quality, middle-range priced coal from Canada, and low quality, cheap coal from Australia. Not only does the blending practice reduce total coal costs, it also facilitates diversification of supply sources. POSCO has improved the blending technique that minimizes total coal costs for an acceptable quality, currently blending 15 different kinds of coking coal on a regular basis.[52]

POSCO enters into long-term bilateral agreements with individual suppliers, consistent with its supply diversification strategy. It appears there is little difference in the nature of long-term contracts entered into by POSCO and KEPCO; not surprising, in view of the fact that both companies are government-owned corporations. The terms of the contracts into which POSCO has entered range from three to fifteen years, with an average of five years. Contracts typically include the "evergreen" clause, and POSCO tends to use it. The long-term contracts specify annual base tonnages over the contract period, but actual annual purchases can be varied within a margin of 10 to 20 percent of the base tonnage at POSCO's option.

POSCO has insisted on stipulating contract prices in FOB terms. The price arrangements are annually determined by negotiation, taking into account supply and demand conditions of coking coal and suppliers' cost factors. Above all, and similar to KEPCO's strategy, POSCO seeks to take advantage of the monopsonistic prices provided for Japanese steel mills, insisting on price settlements in line with those obtained by the Japanese steel mills.

POSCO does not rely on general trading companies as purchase agents, in contrast to KEPCO's procedure. This may reflect the competitive nature of the steel industry and business-oriented operations of POSCO.

## Procurement of Natural Uranium ($U_3O_8$) by KEPCO

During the 1977-85 period, 5730 tons of natural uranium were imported by KEPCO, and it was estimated that annual uranium requirements would amount to 4460 tons by year 2001. It is therefore an important challenge

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52 This was learned during a personal interview with a senior official of POSCO.

for KEPCO to secure a stable supply of uranium. Trade in nuclear resources is a highly sensitive political matter because of nuclear energy's great positive and negative potential. The Korean government is involved in nuclear energy to a greater extent than in other industries. The development of nuclear power is controlled by the government, and government selects reactors to be acquired from different countries. The Ministry of Energy and Resources plays an important role in setting the general direction of nuclear power policy, while KEPCO manages the actual operation of nuclear power plants and procurement of nuclear resources.

Nuclear power generation is extremely capital-intensive and power plant construction requires a long lead time. In addition, KEPCO also possesses a captive demand for its product (electricity). The main objective of KEPCO's uranium procurement policy is therefore to secure a stable long-term supply. KEPCO has taken on this challenge by means of direct importation and overseas development. For its direct importation, it has avoided spot-market transactions because the spot-market is small in scale and presumably unreliable, although spot-market prices can be significantly lower than long-term contract prices.

There are two types of risk involved in securing nuclear resources. One is the conventional risk of internal or regional conflicts affecting a supplier country, a risk germane to any resource. The other, unique to nuclear resources, is associated with political interruptions of the supply of nuclear materials or services resulting from nonproliferation policies and environmental or health concerns. In order to minimize the first kind of risk, KEPCO appears to avoid African and Asian suppliers and relies on strategically stable suppliers such as Canada, the USA, Australia and France. Within these countries, KEPCO diversifies uranium supply sources. Although these strategically stable suppliers are vulnerable to the second type of risk, diversification of uranium supply sources among them provides a relatively reliable flow of the mineral.

The nuclear power industry in general is under tight government control, but the basic mechanism for international trade in uranium is commercial contracting within a market environment. A long-term perspective is essential in uranium trade because of the long lead times required for development of uranium mines, and because capital-intensive nuclear power generation involves lengthy construction periods. Therefore, long-term contractual relationships are customary in international uranium trade. Furthermore, when KEPCO entered the international uranium market in the mid-1970s, the demand for and price of

uranium was rising rapidly, and suppliers could not react quickly enough to satisfy the immediate demand. That situation encouraged KEPCO to insist upon long-term contracts.

KEPCO enters into long-term bilateral contracts with individual suppliers consistent with its diversification strategy. The contracts, generally for a ten-year term, specify annual base tonnages during the contract period. The price is determined by negotiations that take into account the existing international uranium price and the floor price, which is the price at which industry sources believe relatively high-cost U.S. producers can meet U.S. needs until 1990.[53] The two other major producers - Canada and Australia - have adopted the floor price concept for their international uranium contracts. Canada regards the floor price as a price level required to protect investment and employment in uranium production facilities.[54] The floor price, confidentially set by the supplier government and usually lower than the international price, is escalated by the inflation rates of mining wages and mining material costs. KEPCO has introduced a ceiling price based on the international price. The negotiated contract price falls within the range of floor and ceiling prices. The currency in which the transaction prices are denominated is U.S. dollars, subject to special provisions for changes in exchange rates.

KEPCO has undertaken equity investment in overseas uranium development. In view of the uncertainty over uranium procurement and the soaring uranium prices, KEPCO experienced at the outset of its nuclear power development during the 1970s, it was predictable that it would undertake overseas develop-for-import projects as part of its procurement strategy. KEPCO sought to take advantage of the benefits of equity participation, as discussed earlier.

In 1986, KEPCO imported uranium from Canada, France and Australia, with respective contracts of 558 tons, 409 tons, and 229 tons

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53 Economic Council of Canada, *Western Transition*, (Ottawa: Economic Council of Canada, 1984), p. 106.

54 Department of Energy, Mines and Resources, Canada, *Canadian Minerals Yearbook, 1983-1984*, (Ottawa: Department of Energy, Mines and Resources, 1985), p. 636. It is interesting to note that the floor price for potash introduced by the Saskatchewan government during the 1970s was ruled beyond Saskatchewan's power in 1975, because it interfered with interprovincial and international trade. See N. Olewiler, *The Potash Corporation of Saskatchewan: An Assessment of the Creation and Performance of a Crown Corporation*, (Ottawa: Economic Council of Canada, 1986), p. 27.

of natural uranium. The accumulated imports of uranium to the end of 1986 amounted to 6926 tons from the USA, Canada, Australia and France. The market shares of accumulated imports by these countries to 1986 were 43 percent for the USA, 32 percent for Canada, 13 percent for Australia, and 12 percent for France.[55] Natural uranium must go through a number of processes, including conversion, enrichment and fabrication before it can be used to fuel the power reactors used in Korea. KEPCO relies on foreign countries (mainly the U.S.) for such processing. Although the fuel fabrication process for natural uranium is as critical to nuclear power generation as the availability of natural uranium, it is beyond of the scope of the present study.

## Procurement of Potash

In 1985, Korea imported about a half million tons of potash, and Korea's demand for potash is expected to increase in the future. The Korean fertilizer industry has been supported by the government procurement system. The government also influences domestic demand for fertilizer by adjusting the selling price and by providing farmer education programs. The industry is comprised of nine producers, one of them (Korea General Chemical Corporation) owned by the government and holding a significant portion of equity in three other companies. This suggests that the industry operates under strong government influence.

The nine fertilizer companies compete fiercely among themselves. The industry currently exports about 45 percent of its production, so the firms are competing with each other in the international market, and all have excess capacity. Given the limited domestic market, the survival of these companies depends heavily on exports. Competition will be further intensified as the government withdraws its fertilizer purchasing system.

Under such competition, it is not surprising that the thrust of potash procurement policy is cost-minimization. Unlike power and iron and steel, Korea has not experienced a shortage of fertilizer since the 1960s. Fertilizer is readily available in the international market, and even if a shortage of one of the fertilizer components were to occur, its economic

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[55] This information was provided by a senior officer of KEPCO from an unpublished source.

implication would not be as severe as in the cases of steel or power. Furthermore, it is well known that world potash production capacity exceeds its demand and that potash is plentifully available from Canada. One benefit of a long-term contract is that it provides the buyer with detailed information on all aspects of mining operation. But such information is not important to Korean fertilizer producers because every nation that exports potash uses a single selling agency, such as Canpotex for Canada.[56] Therefore, it is not surprising that Korean fertilizer producers refuse to enter into long-term contracts or to undertake an overseas develop-for-import potash strategy.

Diversification of supply sources has not been stressed because potash is plentifully available from a stable and reliable country, namely Canada, which has been the main supplier of potash to Korea. When importing potash from Canada, Korean fertilizer producers have to deal with the Canadian Potash Export Association (Canpotex), the sole selling agency. The existence of Canpotex prevents the buyers from attempting to capitalize on competition among producers that would increase with diversification of supply sources.[57]

Each of the nine fertilizer companies in Korea enters into a short-term bilateral agreement with individual suppliers of potash. The term ranges from one to four years, although one-year contracts have been more common recently. Spot-market transactions are negligible.

Contracts specify annual base tonnage over the contract period with a variation margin of up to 20 percent. Contract prices are generally valid for a period of up to six months; recently they have been negotiated every semester (three months) taking into account the current status and future prospects of potash and fertilizer markets. Contract prices settled for other purchasing countries, particularly for Japan, have an important bearing on the negotiation. Contract prices are denominated in U.S. dollars, with no provision for changes in exchange rates, and set on the

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[56] Olewiler, N., *The Potash Corporation of Saskatchewan: An Assessment of the Creation and Performance of a Crown Corporation*, p. 5.

[57] This was also pointed out by Robert Reid, the former Deputy Minister of Saskatchewan Energy and Mines. He argued that the existence of Canpotex helps to reserve rents because it prevents competition among Saskatchewan producers for offshore sales. Reid, R., "The Economics of Potash", an unpublished paper presented at the University of Saskatchewan, March 3, 1986.

FOB basis as in the case of coal imports. By arranging their shipments using Korean ocean liners, Korean firms may not need to hold an unwarranted amount of inventory stock.[58] Although bilateral potash contracts between buyers and sellers are typically short-term, there is a strong tendency for fertilizer producers to buy potash from the same supplier over time. This hints at the importance of personal relationships in doing business in Korea.

As shown in table 34, Korea has imported potash mainly from Canada. Potash is in essence a homogeneous product, and the risk- and quality-adjusted CIF prices in Korea are perceived by Korean customers to be, in essence, the same regardless of the product's place of origin. How, then, could Canada have maintained such a high share? To answer this question it is useful to examine the marketing activities undertaken by Canpotex. The largest advantage Canpotex possesses in the Korean market is that it penetrated the market earlier than its competitors. During the mid-1970s Canpotex won the confidence of Korean customers with a high quality product and reliable delivery. Also, it appears that Canpotex has understood Korean business culture and the importance of personal relationships. Canpotex has undertaken various market promotion activities, for instance providing research funds to the Association for Potash Research in Korea. Canpotex also provides regular seminars on fertilizer for fertilizer producers, government agencies and research institutes associated with agriculture in Korea. Through these activities, Canpotex enhances the customers' understanding of potash, thereby raising the proportion of potash used as a fertilizer nutrient component.[59] Canpotex develops personal contacts with Korean customers, directly or indirectly through an agent. It even sponsors an annual golf tournament for the senior officials of fertilizer com-

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[58] The disadvantage for Canadian producers arising from the FOB price contract may be mitigated to a certain extent because Canpotex handles the transportation arrangements from the mines to the port to minimize port storage.

[59] It is interesting to note that the former Deputy Minister of Saskatchewan Energy and Mines, Robert Reid, has expressed concerns that Canadian competitors will gain the benefits from Canpotex market promotion activities and expenses. R. Reid, "The Economics of Potash", p. 8. In view of Korean business practices, which stress personal relationships and the continuity of the high Canadian market share, his concerns appear to be unfounded.

TABLE 34

IMPORTS OF POTASSIUM CHLORIDE
(Figures in brackets are percentage of total)

| | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 |
|---|---|---|---|---|---|---|
| Total | | | | | | |
| Volume (000 tons) | 231 | 217 | 365 | 309 | 359 | 482 |
| | (100) | (100) | (100) | (100) | (100) | (100) |
| Value | 30.2 | 31.8 | 39.6 | 27.0 | 36.0 | 47.2 |
| (U.S.$ mill) | (100) | (100) | (100) | (100) | (100) | (100) |
| Canada | | | | | | |
| Volume (000 tons) | 217 | 217 | 340 | 252 | 333 | 338 |
| | (93.9) | (100) | (93.2) | (81.6) | (92.8) | (70.1) |
| Value | 126.9 | 31.7 | 37.0 | 22.2 | 33.5 | 33.5 |
| (U.S.$ mill) | (89.1) | (100) | (93.4) | (82.2) | (93.1) | (71.0) |
| Jordan | | | | | | |
| Volume (000 tons) | - | - | - | 4 | 21 | 58 |
| | | | | (1.3) | (5.8) | (12.0) |
| Value | - | - | - | 0.4 | 1.9 | 5.6 |
| (U.S.$ mill) | | | | (1.5) | (5.3) | (11.9) |
| Others | | | | | | |
| Volume (000 tons) | 14 | - | 25 | 53 | 5 | 86 |
| | (6.1) | | (6.8) | (17.2) | (1.4) | (17.8) |
| Value | 33 | - | 2.6 | 4.4 | 0.6 | 8.1 |
| (U.S.$ mill) | (10.9) | | (6.6) | (16.3) | (1.7) | (17.2) |

Source: Office of Customs Administration, Statistical Yearbook of Foreign Trade; and Korea Traders Association, Foreign Trade Statistics, (Seoul, Korea, Korea Traders Association).

panies, which helps maintain good personal relations - an important factor in doing business in Korea. Canpotex is able to undertake such market promotion activities, perhaps because as the sole selling agent

for off-shore markets, it has the financial capacity to do so. It can also take greater advantage of economies of scale in marketing activities than can individual companies.

Canpotex appears to make good use of a Korean agent called Kunsul Company. This agent maintains contact with the customers, thereby helping Canpotex maintain contact with them. The agent arranges market promotion activities for Canpotex and the required follow-up services. The agent also acts as a bridge between the customers and Canpotex during price negotiations.

Undertaking market promotion activities and maintaining a local agent raises costs. Nevertheless, because the lowering of offshore potash prices would have serious ramifications for the U.S. market, these promotional activities appear preferable to cutting prices to foster sales.

As a result of its efficient market promotion activities, Canpotex is well regarded by the Korean fertilizer business community.[60] Rather than viewing Canpotex as a monopolistic consortium of private producers, the Korean community regards it as an agent providing security of supply and convenience in potash procurement. It is also probable that Canpotex shares with its customers part of the benefits from the scale economies in distribution and market promotion activities.[61] Contrary to conventional wisdom, then, the so-called orderly market attributable to a single export association is not necessarily a drawback for customers.

It is interesting to note from table 34 that the Canadian share of Korean potash imports by value has been consistently higher than its share by volume. This indicates that the Korean CIF price of Canadian potash is higher than that for other countries. Part of the price difference is accounted for by ocean transportation costs. The freight rates in 1985 were estimated to range from US$10 to US$11 a ton from Canada and

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[60] This was expressed by a number of senior officials associated with the Korean fertilizer industry during personal interviews conducted by the author. A similar opinion was expressed by an official of the Korean agent of Cansulex (the Canadian industry marketing agency of sulphur).

[61] R. Reid has stated that Canpotex achieves significant economies in transportation, distribution and market development compared to what the seven companies can do individually. See R. Reid, "The Economics of Potash", p. 7.

from US$9 to US$10 a ton from Jordan.[62] In spite of higher prices, the Canadian share of the market has remained above 70 percent. This may be indicative of successful marketing by Canpotex, or of the importance of non-price matters such as personal and clientele relationships in Korea.

In 1985, Jordan exported 58 thousand tons of potash, accounting for 12 percent of the total Korean imports, compared with 338 thousand tons or 70 percent from Canada. (table 34). The remaining 86 thousand tons were imported from Israel and USSR. The rapid increase in Jordan's share is attributed to diplomatic pressure from Jordan, a country where Korean companies undertake overseas construction projects.[63] This situation reflects the influence of diplomatic and political pressures on potash procurement in Korea. It does not appear that the Canadian share will decline further as long as Canpotex maintains its successful market promotion activities.

## Summary and Conclusions

Procurement procedures of Korean end-users of the individual minerals under investigation have been analyzed in order to formulate marketing strategies for seizing identified opportunities. The essence of Korea's trade policy is import liberalization and diversification. There is no longer any government constraint on importing minerals; all are automatic approval items with minimal tariffs. Nonetheless, the government exerts a significant and pervasive influence, not only on the overall mineral procurement strategy but also on the purchase of individual minerals. Another organization that plays an important role in mineral trade is the Korean general trading company, which provides expertise and information on market opportunities regarding both imports and exports, and serves as a bridge between end-users and foreign suppliers of minerals.

Diversification of mineral supply sources by country and region is pursued by all end-users of coal and uranium. Diversification has been

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62 This was provided by a senior official of the Korean agent of Canpotex during a personal interview.

63 King Hussain of Jordan visited Korea in 1984. It is believed that the sole purpose of the visit was to sell potash to Korea.

employed, not only as a tool to enhance supply security, but also as a strategy to decrease mineral prices by fostering competition among suppliers.

The procurement strategies of Korean customers vary with different minerals. For anthracite coal, import requirements are determined largely by political factors and weather conditions. To respond to the varying demand for imports, Korean users obtain anthracite coal through short-term contracts or spot markets. The Korean Electric Power Corporation (KEPCO) possesses a captive demand for its products, so its major concern is getting a stable, long-term supply of steam coal. Hence, it establishes long-term bilateral contracts with suppliers and pursues a supply diversification strategy. KEPCO's long-term contracts include options to deviate from the specified quantity by a certain margin; they also include price escalation clauses. The contracts also include escape clauses which allow the buyer or seller to rescind the contract with advance notice. For contract price determination purposes, KEPCO insists on FOB terms and "fair" deals in line with those offered Japanese customers. Furthermore, KEPCO employs general trading companies to act as its agent for coal imports, and has not opted for an overseas develop-for-import strategy for steam coal.

The Korean cement companies compete with one another, both domestically and internationally. Their main concern regarding steam coal procurement is cost-minimization rather than long-term supply security. Therefore, they buy steam coal through spot markets or short-term arrangements with countries regardless of political instability or associated risks. Government influence on the steam coal procurement by the cement industry is minimal but general trading companies are major players.

The Pohang Iron and Steel Company (POSCO) does not possess a captive market for its products, although those products are vitally important for the Korean economy. In this context, POSCO has two objectives for its coking coal procurement: long-term supply security and cost minimization. POSCO's three major strategies to these ends are long-term contracts, overseas develop-for-import projects, and supply source diversification. The nature of its long-term contracts appears to be essentially the same as those of KEPCO. For POSCO, diversification is also part of its scheme of blending different qualities of coal. With regard to long-term contracts, POSCO is also keen on obtaining deals that compare favourably with those offered to Japanese customers.

KEPCO buys uranium through long-term contracts and overseas uranium develop-for-import projects. Canadian and Australian producers have introduced the concept of a floor price in their price negotiations. Prices may climb over time as a result of increasing mining costs. KEPCO became involved in develop-for-import projects because of market uncertainties during the 1970s, when it began to develop its nuclear power capability.

The procurement procedure for potash is different from that for other minerals. Because of competition among fertilizer producers domestically and internationally, short-term contracts prevail and contract prices are negotiated every semester. Diversification of supply sources has not been stressed, nor has an overseas develop-for-import strategy been seriously considered. It appears that Canpotex functions effectively as a sole agent in Korea, conducting marketing activities in Korea to good advantage.

Finally, although the procurement strategies of Korean customers for coal, uranium and potash differ in some ways, they are not entirely disparate. For instance, all Korean customers are guided and even controlled by the government in their mineral procurements. And their procurement strategies are developed in line with the competitiveness of the markets for their final products. If the companies of an industry compete with one another (e.g. cement and potash), their main concern is with cost minimization, and they procure minerals through spot markets or short-term contracts. If captive demands exist for the final products (e.g. steam and coking coal and uranium), supply security of minerals is stressed, and long-term purchase contracts predominate. Another common feature is diversification of supply sources by country and region (except for potash) in order to enhance supply-security and to foster competition among suppliers. Korea purchases its minerals on the basis of FOB terms in order to take advantage of various commercial benefits. Korean customers are anxious to get deals that compare well with those offered to their Japanese counterparts. Finally, non-price factors, such as personal relationships and political pressures, have important bearings on purchases of all minerals.

# 6. KOREA'S OVERSEAS RESOURCE DEVELOPMENT

## Introduction

As indicated in chapter 4, Korea's scanty resource endowment forced it inextricably into dependence on overseas resources. Until the commodity boom of 1973-74, Korea had relied on long-term purchase contracts, which had traditionally assured stable supplies of essential raw materials. However, the commodity boom proved that such arrangements are not totally secure, as export embargoes were imposed and other contracts were unilaterally cancelled. Uncertainty and insecurity concerning the overseas resource supply were further increased by rising nationalism and the formation of international resource cartels by resource-exporting countries during the 1970s. Korea's concerns about securing resources through purchase contracts were aggravated by its perception that Japan had received preferential treatment. Consequently, Korea began to promote overseas resource development as a way of ensuring long-term resource security.

Not only does overseas resource development improve resource security, it also provides other benefits. Korea expects overseas resource development will provide the information required for trade negotiations, improving the Korean position in negotiations with foreign suppliers. In addition, it is regarded as an efficient vehicle through which Korea can learn advanced mining and management skills from industrialized contries. Korea also expects that such development will facilitate its participation in the overseas construction of industrial infrastructure.[1]

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[1] The need for overseas resource development activities and their expected benefits have been pointed out by the Ministry of Energy and Resources. The Ministry of Energy and Resources, *Overseas Resources Development Projects*, (Seoul, Korea; Ministry of Energy and Resources, 1985), an unpublished internal document, p. 3. Because of these expected benefits, Korea appears to support its overseas projects even if they prove unprofitable or costly. A senior official of a trading company said during a personal interview that none of Korea's overseas resource development projects are profitable. Yet Korea continues to support these projects. It should be noted that the Japanese investors also undertake unattractive overseas resource development investments. See P. Crowson, "Non-fuel Mineral

The Korean government exerts an overwhelming influence on its overseas resource development projects. The government can in effect force Korean government-owned corporations, government agencies and even private end-users to purchase their required minerals from overseas projects developed by Korean companies or by their joint ventures before considering other available sources. During a period of slack demand, the government will implement such a policy of preferential treatment for minerals produced by Korean projects, exacerbating the depressed market condition for other suppliers. This indicates that Korea's develop-for-import policy will affect its procurement policies related to overseas resources. When developing a marketing strategy for the Korean resource market, one should take this into account.

For mineral-rich countries, foreign investments in their resources not only secure the demand for their minerals but also provide other economic benefits. New extractive ventures are often linked to investments in industrial infrastructures such as ports, surface transportation and power sources. Such ventures serve to create regional development and employment opportunities.

On the other hand, there is a growing concern that the proliferation of develop-for-import projects in the metal sector will distort and fragment the world metal trade, because they are discriminatory, bilateral countertrade arrangements not subject to international surveillance. As a result, they could reduce the system of international discipline and consultation developed by the GATT.[2] Because develop-for-import projects are often subsidized by their home countries, they may encourage unnecessary capacity expansions, leading to predatory pricing and dumping in the international resource market. Therefore, one can see that Korea's overseas resource development may have important implications for Canadian mineral marketing.

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Procurement Policies", in Nibotoshi Akao, (ed.), *Japan's Economic Security*, (New York: St. Martins Press, 1983), p. 153.

2 This was pointed out by J. I. Walsh, "The Growth of Develop-for-Import Projects", *Resources Policy*, Vol. 8 (4), 1982, p. 282.

## Current State of Korea's Overseas Mineral Development

In 1978, the Korean government enacted the Overseas Resources Development Act, and established a joint-venture project with Thailand for exploration and development of tin. Since then, Korea's overseas mineral development activities have increased rapidly, focusing on bituminous coal, uranium, copper ore and iron ore. It has also set future target rates for imports from these projects: 30 percent for coal, 30 percent for uranium, 20 percent for copper ore, and 10 percent for iron ore.[3] Korea has already imported substantial amounts of coking and steam coal from Korean sponsored overseas developments. By January, 1985, 2.6 million tons of coking coal and 200 thousand tons of steam coal had been imported from such developments. The annual import volumes anticipated from overseas developments for the 1985-86 period were 2.5 million tons of coking coal and 1.2 million tons of steam coal, and they account for, respectively, about 30 percent and 13 percent of annual total imports.[4]

As shown in table 35, 13 projects were underway for mineral development as of January 1985. They included five projects for coking coal, three each for steam coal and uranium, and one each for anthracite and tin. These projects are being undertaken in a number of countries: three each in Canada, the United States, and Australia, two projects in Indonesia, one project each in Thailand and Gabon. The Pohang Iron and Steel Company (POSCO) has undertaken three coking coal projects, and the Korea Electric Power Corporation (KEPCO) has undertaken two uranium projects. Three projects have been undertaken by private companies. Out of seven private companies involved in overseas mineral development, two are mining companies (Daesung and Bongmyung), one is a marine transport company (Sunil), and the remaining five companies are general trading companies (Hyundai, Daewoo, Samsung, Lucky-Goldstar, and Kohap).

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[3] Ministry of Energy and Resources, *Long-Term Energy Prospects and Strategy toward the Year 2000*, p. 255.

[4] This information was obtained from an unpublished internal document prepared by the Ministry of Energy and Resources.

TABLE 35

KOREA'S OVERSEAS MINERAL DEVELOPMENT PROJECTS
(as of January 1985)

| Korean Companies | Minerals | Country | Project | Joint Investors | Korean Investment (US$mill) | Korean Equity Share(%) |
|---|---|---|---|---|---|---|
| POSCO | Coking coal | U.S.A. | Tanoma | POSCO alone | 68.5 | 100 |
| POSCO | Coking coal | Austr. | Mt. Thorley | R.W.Miller | 49.1 | 20 |
| POSCO | Coking coal | Canada | Green Hill | B.C.Coal Ltd. | 60.0 | 20 |
| Lucky-Goldstar | Coking coal | Austr. | Ensham | Bligh coal | 0.5 | 5 |
| Sunil | Coking coal | U.S.A. | Usi-belli | Usibelli coal | 1.0 | loan |
| Hyundai, Daesung | Steam coal | Austr. | Dray-ton | Thiess shell | 15.5 | 5 |
| Kohap | Steam coal | Indo-nesia | Kali-mentan | S.D.R.Ltd | 3.8 | 40 |
| KIDECOa | Steam coal | Indo-nesia | Pasir | P.N.Tambang Batubara | 7.7 | 86.5 |
| KADCOb | Anthra-cite | U.S.A. | Bering River | C.N.I. | 7.7 | 50 |
| KEPCO | Uranium | Gabon | Nord Ieyon | Cogema Gabon Gov't | 12.5 | 41 |
| KEPCO | Uranium | Canada | Dawn Lake | SMDC 3 others | 3.0 | 4.5 |
| Daewoo | Uranium | Canada | Baker Lake | U.G.Ltd EGB(U.K) | 3.3 | 10 |
| Bong-myung | Tin | Thai-land | Hoilu-ang | Honghiran | 2.7 | 40 |

Source: Ministry of Energy and Resources, "Current State of Overseas Resources Development, as of January 1985", (an unpublished table).

a Korea-Indonesia Development Corporation.
b Korea-Alaska Development Corporation.

As of January 1985, a total of US$235 million had been invested for the above projects, with most of these investments undertaken in Canada (28 percent), the United States (33 percent), and Australia (28 percent). In Canada, Korea has participated in three joint venture projects: the Dawn Lake uranium project by KEPCO, the Baker Lake uranium project by Daewoo (a general trading company), and the Greenhills project for coking coal by POSCO. The equity shares for these projects are, respectively, 4.5 percent, 10 percent and 20 percent (table 35).

Because of a shortage of capital and a lack of mining technology and experience, all of Korea's overseas mineral development projects are in the form of "production sharing joint ventures", with the exception of the Usibelli and Tanoma projects in the United States.[5] The "buyback arrangement" with the Usibelli project is minor, involving only a US$1 million loan. The Tanoma project was fully financed by POSCO as an experiment to improve supply security of coking coal and to learn about mining operations in North America.

One special joint venture project for overseas mineral development is the Boring River project in Alaska, involving anthracite coal. In order to undertake this project, two general trading companies (Hyundai and Samsung) together with two end-users of anthracite coal (Daesung and Samchuk) organized the Korea-Alaska Development Corporation. This company formed a consortium with Chogachi Native Incorporated in Alaska. It is interesting to note that the member companies (Hyundai and

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[5] Overseas resource develop-for-import arrangements are generally classified into three basic types: production sharing joint ventures, buyback arrangements, and import arrangements for technical aid. Production sharing joint ventures are financed by a consortium of foreign and host country investors. In return for supplied equity, each partner receives a share of the project's production, with ownership and control remaining with the host country investor. Buyback arrangements are financed by loans. The foreign investors extend loans to the producer nation to facilitate purchases of machinery and equipment needed for resource development projects. The resulting output is committed to the creditor as repayment in kind for the loans. Under an import arrangement for technical aid, loans are extended to a host-country company so that it may purchase technical aid from the credit nation. In return, the host producer guarantees part of the developed resources to the creditor nation. For further detailed explanations, see J. T. Walsh, "The Growth of Develop-for- Import Projects", *Resources Policy*, vol. 8 (4), 1982, p. 278.

Samsung) of the Korea-Alaska Development Corporation are fiercely competitive, domestically and internationally; they may have realized that they have a converging interest in large-scale overseas development investment. The Korea-Alaska Development Corporation is a functional conglomerate that facilitates the development of a large-scale project by combining financial capacities and by enabling each member firm to contribute its specialties to the project. General trading companies, for instance, provide the necessary services for the management of large-scale development projects, including technical and commercial feasibility studies, arrangements of finances, and logistic operations. The end-user companies provide a market for the product.

## Korea's Overseas Mineral Development Policies

Overseas mineral development projects are highly capital-intensive risk-laden ventures with long investment gestation periods. It would be impossible for a single Korean firm to finance such projects and carry the total risk. Consequently, the Korean government is actively involved in Korea's overseas mineral development activities, exercising tight control over such developments, and at the same time providing various subsidies.

The legal basis for government control over overseas resource development resides in the Overseas Resources Development Act promulgated in 1978 and amended in 1982. Under this act, a Korean firm must obtain a permit from the government (the Ministry of Energy and Resources) when it wants to undertake, alter, or cancel overseas resource development projects. The government can control competition among Korean firms developing an overseas resource. It can issue an order to import to Korea all or part of the overseas resources developed by Korean firms, if such imports are deemed necessary for the security of resource supply. As indicated earlier, the government can order Korean importers to purchase their required minerals from overseas projects developed by Korean firms before turning to other sources. In the case of multiple overseas development projects, the government can order a preferential purchase of minerals from one project over another regardless of purchase conditions.

The government has issued a set of policy directions for overseas resource development.[6] For designated minerals (bituminous coal, uranium, copper ore, and iron ore), the diversification of projects by country and region has been stressed. Consistent with this diversification policy, the government has recommended politically stable countries such as Canada, the United States, and Australia as target areas. In its effort to minimize risk involved, it has recommended that Korean firms seek production sharing joint ventures with minority equity shares of less than 30 percent.

In the case of a large-scale project, the government encourages the development of a consortium company of general trading companies, domestic mining companies and end-users of mineral products. Through this type of consortium, Korea aims not only at supply security but also at other spillover benefits such as exports of mining plants, machinery and equipment, and opportunities for contracts for overseas construction of infrastructure.

The Ministry of Energy and Resources has principal responsibility for Korea's overseas resource development policy. In implementing the policy, the Minister is required by law to consult with the Minister of the Economic Planning Board and the Minister of Finance. Another important organization is the Overseas Resources Development Deliberation Committee, an advisory council consisting of the Minister of Energy and Resources as chairman and 15 members including assistant-minister-level officials from the Economic Planning Board, Ministries of Foreign Affairs, Finance, Trade and Industry, and Science and Technology, representatives from the Korea Mining Promotion Corporation and the Export Import Bank of Korea, and some prominent professors. Basic policy issues and permission for specific projects are determined in consultation with the committee.

Another important organization in the Korean overseas resource development system is the Korea Mining Promotion Corporation (KMPC), a government-owned corporation. The Minister of Energy and Resources delegates to the KMPC investigations required in permitting overseas resource development projects. KMPC also provides technical assistance and information to overseas resource development firms. To

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[6] Ministry of Energy and Resources, *Overseas Resource Development Projects*.

accomplish these tasks, KMPC undertakes the general survey work and investment feasibility analysis.

The Korean government provides several levels of support for overseas exploration and development including long-term loans, insurance and tax-subsidies. The process through which the Korean government extends this assistance involves two government agencies: the Korea Mining Promotion Corporation (KMPC) and the Export/Import Bank of Korea (EXIM). Through the Foreign Resources Development Fund established in KMPC, the government extends long-term loans for up to 100 percent of initial drilling costs. These loans must be paid back only if exploration prospects from the initial drilling prove successful. Detailed follow-up exploration is facilitated by long-term loans from the KMPC fund with below-market interest rates and a longer-than-normal grace period before the first payment is due. The loans also have longer than normal payment periods.

Overseas exploration and development projects are assisted by loans from EXIM instead of KMPC if the projects are large. These are long-term, low-interest-bearing loans with longer-than-normal grace and payment periods.[7] Up to 1984, accumulated loans extended by EXIM for overseas resource development projects (excluding forestry projects) amounted to US$123 million.[8] It should be noted that neither KMPC nor EXIM provides loan guarantees if Korean companies borrow funds from commercial banks to undertake overseas resource development projects. Neither participates in direct investments as a joint investor with private enterprises.[9]

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7 The loans by the Export/Import Bank have, at maximum, 30 years of grace period with, at mixiumum, 20 years of payment period. For further detail on government subsidies for overseas development see, the Korea Institute of Energy and Resources, *A Study on Overseas Resources Development*, (Seoul, Korea: Korea Institute of Energy and Resources, 1983), pp. 28-43.

8 Buhn-Woo Park, *An Empirical Study on the Development of Overseas Forest Resources for Import by Korea*, unpublished M.A. dissertation, Jungang University, July 1984, p. 35.

9 This is an interesting contrast to the Japanese support system for overseas resource development, which includes both loan guarantees and equity participation. For the Japanese system, see T. G. Kolenda, "Japan's Develop-for-Import Policy" *Resources Policy*, vol. 11 (4), 1985.

The Overseas Investment Insurance Plan of the Korean government compensates up to 90 percent of overseas losses resulting from political risk (war, revolution, civil war, or unanticipated changes in exchange laws) and commercial risk (bankruptcies of foreign partners). As a major tax subsidy, the government allows overseas development companies to deduct up to 20 percent of overseas resource development expenses as a loss for tax purposes.[10]

## Role of General Trading Companies

The mineral industry can be classified into two tiers of activities: the upper tier activities which include exploration, development and production, and the lower tier activities which include inventory, refinery, logistics and marketing. The overall difficulties and risks involved in overseas mineral development can be reduced by an efficient linkage of the two tiers of activities. General trading companies are ideal organizations for making such a linkage in Korea.[11] They have a number of advantages in preparing technical and commercial feasibility studies, organizing the Korean market for the end product, forming joint ventures, and arranging project financing, logistics and purchase contracts. As a result, Korean general trading companies have played a central role in developing overseas mineral ventures. In fact, out of 13 overseas mineral projects currently in progress, five are being undertaken by general trading companies, either by themselves or in conjunction with domestic end-users or mining companies.

The linkage between the mineral industry's two tiers of activities can take the form of vertical integration, with the chain of processes from mining through to sales of end product contained within one corporate enterprise, which makes co-ordination of planned supply and demand relatively efficient. The advantage of vertical integration is most obvious

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[10] Buhn-Woo Park, *An Empirical Study on the Development of Overseas Forest Resources for Import by Korea*, pp. 36-41.

[11] This is also true in Japan. For the role of general trading companies in Japan's overseas resources development, see T. Ozawa, "Japan's Resource Dependency and Overseas Investment", *Journal of World Trade Law*, vol. 11 (1), 1977, pp. 52-73, and T. E. Kolenda, "Japan's Develop-for-Import Policy", *Resources Policy*, vol. 11 (4), 1985, pp. 257-286.

for minerals (e.g., aluminum) for which technical and locational factors lead to a high degree of interdependence between bilateral trade flows. This is so because the common ownership of mining and mineral-using activities under a vertical integration obviates the need for complex contractual arrangements for distributing the joint gains and risk between the trade partners.[12] However, with minerals for which technical and locational characteristics do not inhibit diversification of markets or supply sources (e.g., coal), complete vertical integration is likely to reduce the probability of spreading or minimizing the risk involved.

As indicated earlier, the Korean government emphasizes the overseas development of coal, uranium, copper and iron ores, and it also stresses diversification of geographic regions for such development. For the above minerals, the technical and locational factors are not so important for this international trade as to warrant vertical integration. Besides, investors do not possess sufficient capital sources and advanced managerial skills required for vertical integration. Hence, the typical form of overseas mineral development organized by trading companies is the joint-venture-type arrangement. This is consistent with the government's diversification policy of strongly encouraging participation in as many projects as possible.

## Conclusions

Resource-rich countries should expand the scope of their traditional mineral marketing strategy to include the encouragement of foreign investment in their minerals. In doing so, they must comprehend the determinants and procedures of overseas resource development policies.

Korea has embarked on overseas resource development activities as an integral part of its resource security policy. Through develop-for-import projects, Korea strives not only to achieve secure supplies of essential resources, but also to take advantage of various spillover

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[12] For advantages and disadvantages of complete vertical integration, see Ben Smith, "Bilateral Commercial Arrangements in the Energy Coal Trade", in S. Harris and T. Ikuta, (ed.), *Australia, Japan and the Energy Coal Trade*, pp. 173-175.

benefits. It is highly likely that Korea will continue to expand its overseas resource development activities.

The Korean government plays an important role, being directly involved in choosing and approving projects, maintaining control over them, and extending financial support. Owing to a shortage of capital and inadequate experience and technology, Korea appears to prefer small-scale production sharing joint ventures in politically stable, developed countries. As Korea acquires mining technology and experience, however, it may expand its activities to capitalize on spillover benefits.

General trading companies are catalysts in Korea's overseas resource development. Capitalizing on their vast overseas office and information gathering networks, solid financial standing, and managerial and negotiation skills, general trading companies have undertaken a number of overseas resource projects. The importance of general trading companies will increase as Korea expands its overseas resource development toward developing countries or toward large-scale consortia, because their advantages are even greater in those areas.

In order to encourage Korean resource investments in Canada, continuous contacts with pertinent organizations, both at the diplomatic and business levels, must be maintained. Through these contacts, information about Canadian minerals and mines will be provided to Korean firms and cordial personal relationships will develop. It must be remembered that negotiations for foreign investment in resources take longer than those for sales contracts, since they involve numerous organizations. However, the rewards may be larger and last longer.

# 7. CONCLUSIONS: OPPORTUNITIES AND MARKETING STRATEGIES

## Introduction

The primary objective of this study was to develop a marketing strategy that would facilitate an expansion of Canadian mineral exports to the Korean market. To this end, the study analyzed:

- Korea's anticipated demand for minerals;
- the mineral procurement procedures of Korean customers;
- government policy pertinent to mineral procurements.

This chapter reviews major findings and recommends market promotion strategies.

## Review of Findings: Opportunities

As an ancient nation, Korea has a rich and unique cultural heritage, and its people are generally industrious, disciplined and well-educated. These traits have contributed to the Korean economic success. Since 1962, economic activities in Korea have been geared to the achievement of targets set by consecutive five-year economic development plans. The economy and business operate under extensive government controls and regulations. As a consequence, interest groups (trade associations) have developed, representing almost every type of business; they play an important role in the Korean economy.

The Korean economy has enjoyed a high rate of growth over the last two decades. The most remarkable growth has occurred in exports, the "engine" of growth. The Korean economy relies heavily on imports of raw materials; more than 19 percent of GNP is allocated for such imports. Korea registered a trade surplus of US$5.3 billion for the first time ever in 1986, and the surplus is expected to grow over time.

An important question arises regarding whether or not Korea's rapid economic growth can continue in the future. In view of the past realization of ambitious economic targets, Korea appears to be capable of maintaining its high economic growth. This will, however, require

Korea to liberalize imports and foreign investment policies in Korea and to encourage overseas investment by Koreans. At the same time, Korea should become an increasingly important market for minerals.

Canada and Korea are now important trade partners, and because of marked differences in resource endowments and in the thrust of economic development policies, the two economies are highly complementary. The basis of trade between them is the exchange of raw materials from Canada for consumer and light-industrial goods from Korea. Bilateral trade between the two countries has increased at a remarkable rate since the mid-1970s, apparently the result of Korea's rapid economic growth and its industrial strategy.

Although bilateral trade has increased, economic interdependence between the two countries is still low. This leads one to conclude that Canada and Korea should work together on the basis of mutual interests to expand bilateral trade. To that end, research into possible problems and issues associated with the growth of the Canadian-Korean economic relationship is required.

It appears that the Canadian and Korean mineral trade will grow with bilateral trade and remain a major component of it. The growth of that mineral trade depends above all upon the existence mutual trust and confidence, and depends upon Korean perceptions of Canada as a reliable supplier and Canadian perceptions of Korea as a secure market.

In particular, there is a significant Korean market potential for Canadian coal (anthracite, steam and coking coal), uranium, and potash. Since the mid-1970s, the Korean government has been pursuing a policy of energy diversification, to decrease Korea's dependence on imported oil and to increase use of coal, nuclear power and LNG.

Korea's consumption of primary energy has increased with economic growth. For the 1962-85 period, consumption of primary energy increased by 7.6 percent a year, while the economy had an annual growth of 8.3 percent. Although the level of per capita energy consumption has increased rapidly in Korea, it is still less than half the level of Japanese consumption, prompting one to expect future increases in energy consumption.

A remarkable change in the structure of energy consumption has occurred over time. The level of petroleum consumption has remained unchanged since 1980, while its share in total energy consumption has declined. Nuclear power has increased its share in total energy consumption; similarly, the importance of coal has increased. The most striking feature of the Korean energy situation is its heavy reliance on

imported energy: it increased from 10.9 percent in 1962 to 76.4 percent in 1985.

It is estimated that energy consumption will increase at an annual rate of 5.0 percent to the year 2001. Petroleum consumption will maintain a moderate growth rate while its share in total energy consumption will further decline. Nuclear power is expected to increase most rapidly by 10.4 percent a year to 2001, and its share will further increase. Coal consumption will increase by 4.3 percent a year to 2001, with bituminous coal consumption expected to grow at an annual rate of 10.3 percent over this time period. Finally, reliance on imported energy will further increase from 76.4 percent in 1985 to 89.6 percent by 2001.

Korea consumed 25 million tons of anthracite coal in 1985, of which about four million tons were imported. The level of anthracite coal imports will decline to about one million tons by 2001. But the demand for steam coal to generate power is expected to increase from the 1985 level of 5.6 million tons to 28 million tons by 2001. All of this coal will be imported. Steam coal consumption by the Korean cement industry is expected to increase from 2.9 million tons in 1983 to 5.6 million tons by 2001.

All of the coking coal required for the Korean iron and steel industry must also be imported. Although coking coal consumption recorded a 21.6 percent annual growth rate over the 1976-83 period, demand for coking coal will increase by 4.2 percent a year reaching 13.1 million tons by 2001, compared to the 1983 level of 6.2 million tons. Total uranium requirements must also be met with imports, which are expected to grow at 9.3 percent a year during the period 1986-2001. By 2001, 15 nuclear power plants in operation will require about 4500 tons of natural uranium annually.

The Korean fertilizer industry achieved self-sufficiency in 1968. Since then it has become an important export industry. For example, since 1980 about 45 percent of Korea's chemical fertilizer production has been exported. Hence, the health of the Korean fertilizer industry depends upon its success in the international fertilizer market. The prospects for potash sales to Korea appear reasonably attractive. As the fertilizer composition ratio improves to its ideal level in Korea, consumption of potassium fertilizer will increase more rapidly than other components. Furthermore, a significant shortage of potassium fertilizer is anticipated in developing and centrally planned countries. The latter situation would enable Korea to expand its exports of potassium fertilizer,

which means Korean demand for potash should grow significantly in the future.

For mineral procurement, the two main thrusts of Korean trade policy are import liberalization and supply diversification. Minerals are all freely imported with minimal tariffs. The buying strategies of Korean customers for coal, uranium and potash are all different, but they share some common procurement procedures.

- First, Korean customers are guided and controlled by the government in their mineral procurements.

- Second, procurement strategies are based on the competitiveness of the markets for final products. If companies in an industry compete with one another - as in cement and potash - their main concern is cost-minimization, and they procure minerals through spot markets or short-term contracts. If captive demands exist for final products - as in coal and uranium - security of supply is stressed, and long-term contracts are the predominant form of procurement. Long-term contracts entered into by Korean customers generally allow the buyer to alter the actual purchases from the specified contract quantity within a specified margin. Prices are escalated on the basis of a predetermined formula or as a result of periodic negotiations to reflect changing market conditions. These contracts also have "escape hatches" which allow a buyer or seller to cancel the agreement with advance notice.

- Third, import diversification by country and region is sought by all customers except those for potash; it is adopted as a tool to enhance supply security and also as a strategy to reduce mineral prices by fostering competition among suppliers.

- Fourth, Korea purchases the minerals in question on FOB terms, whereby Korean importers control the rate of shipments, the rate of shipping arrivals, and the levels of on-shore inventories. The control of logistics provides Korea with significant commercial advantages.

- Fifth, Korean customers are anxious to get fair deals from suppliers, comparable to those provided for their Japanese counterparts.

- Sixth, non-price factors such as personal relationships and political pressures have an important bearing on Korean mineral purchases.

Korea is promoting overseas mineral development as an integral part of its long-term resource security plan. In doing so, the government has established target rates for mineral imports from overseas development projects. Korea expects spillover benefits from overseas resource development activities, so one can predict that Korea will further expand its overseas resource development over time. It follows that Canada should expand the scope of its mineral marketing strategy in order to attract additional Korean investment in the Canadian mineral sector.

Korea is currently participating in 13 such projects, involving coal, uranium and tin. The majority of these projects are undertaken in politically stable countries such as Canada, the United States and Australia, taking the form of production-sharing joint ventures. The Korean government exerts a strong influence on its overseas resource development projects. It is directly involved in choosing and approving them, controls the levels of mineral imports, and also provides various forms of financial assistance.

Finally, general trading companies play an important role in Korea's overseas resource development projects. Capitalizing on such advantages as vast overseas office and information networks, solid financial standing, and managerial and negotiation skills, general trading companies undertake overseas resource development projects either by themselves or jointly with end-users or mining companies. They will assume increasingly important roles in the future as Korea redirects its overseas resource development activities towards developing countries and large-scale consortia.

In summary, this study has attempted to identify and assess the Korean market potential for Canadian minerals, to explain the Korean cultural background and the political and business systems in which Korean customers operate, and to investigate, in detail, the procurement procedures Korean customers follow in importing coal, uranium and potash. There is a growing demand in Korea for minerals Canada can supply. How can Canada effectively approach this growing market so as to expand its market share? To this end, the following marketing strategies are suggested.

## Recommended Strategies

*1. Commitment, Patience and Tenacity*

Canada's traditional markets (the USA, the EEC, and Japan) are continuously diversifying their supply sources for minerals, and their demand for minerals is levelling off as their economies mature. Canada should seek to diversify its mineral export markets to decrease dependence on these traditional markets. To the extent that import diversification by these countries is intended to foster competition among mineral suppliers, an obvious Canadian response is diversification of its export markets. Furthermore, in view of Japan's oligopsonistic practices in obtaining coking coal and presumably other minerals, together with the difficulties involved in any collective action against Japan by countries such as Australia and Canada, the strategy of export market diversification appears commendable.

In order to diversify its export markets, Canada should choose a target country and intensify its efforts to expand its mineral market in that country. Once Canada establishes a coordinated strategy and a foothold in that market, it can put further resources in place to apply that strategy in other countries. Korea appears to be an appropriate place to start because its economy is growing rapidly.

Given this conclusion, the first and foremost Canadian requirement is a firm commitment to the challenge of expanding its exports to Korea.[1] Patience and tenacity will be required in analyzing market potential, in searching out and selecting buyers, and in pursuing the trade leads identified.

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[1] Keegan argues that the single most important factor in determining export success is not comparative advantages nor product characteristics, but company attitude and commitment. W. J. Keegan, *Multinational Marketing Management*, (Englewood Cliffs: Prentice-Hall, 1984), p. 495. In this regard, see also Ian Robertson, "Canada and Pacific Trade: The Marketing Challenge", *Issues*, (by the Asia Pacific Foundation of Canada), vol. 2, no. 1, Spring 1987, p. 8.

*2. Translation of Complementarity to Actual Trade: A Joint Canada-Korea Consultative Forum*

Mineral trade between Canada and Korea is tied to overall bilateral trade, which in turn depends upon the complementarity of the two economies. In order to take advantage of this complementarity it is important for Canadians to appreciate that mutual benefits can derive from a long-term bilateral relationship and from an increased understanding of the opportunities each country offers. Any hindrance to the development of a long-term relationship should be identified and redressed.[2] This requires continuous examination of, and in-depth research into, problems and issues associated with the growth of bilateral trade. To accomplish this, relevant expertise in business and academic communities of each country should be developed, with regular interaction among these experts and government officials. Establishment of a joint Canada-Korea consultative forum in the area of bilateral economic relations would be valuable. Such a forum should include members of academic communities as well as business groups. Since these tasks are long term in nature, business groups alone, concerned as they are with predominantly short-term issues, may not be adequate. Such a forum should run on a continuous basis, with workshop meetings held regularly. Through such channels, information could be shared, exchanges of expertise facilitated, and mutually acceptable trade strategies developed.

*3. Appreciation of the Importance of Culture and Personal Relationships*

Culture is an important factor in the development of international trade. Whereas western culture is based on the importance of the individual, Korean culture emphasizes the group. Korean society is homogeneous ethnically and culturally; within that society, a strong and unique sense of a "group society" has been developed, which stresses personal relationships with others in daily life.

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[2] It is interesting to note that Australia and Japan entered into a "Basic Treaty of Friendship and Cooperation" in 1976 to accomplish, in essence, these objectives. See J. Crawford, S. Okita, P. Drysdale and K. Kojima, "Economic Interdependence in the Western Pacific", in J. Crawford and S. Okita, (eds.), *Raw Materials and Pacific Economic Integration*, p. 142.

The Korean business culture has developed in this context. The business community cherishes and emphasizes personal relationships in its procedures and practices, so the establishment of cordial personal relationships is a prerequisite for conducting business with Korea, particularly in the mineral trade. International trade in minerals is determined not by price alone; quality and logistics are equally important variables. By specifying these conditions in advance, competition can in effect be eliminated, facilitating collusion between supplier and customer. Public tendering does not mean much under these circumstances; it may just create the impression of compliance with rules and regulations. In many cases, quality- and risk-adjusted prices of minerals are perceived by Korean customers to be essentially the same, regardless of the country of origin.[3] Recently, Korean coal customers have differentiated their actual purchase quantity from the contract base tonnage by a margin of up to 50 percent. Hence, contracts themselves do not mean much; personal relations and market promotion activities are also important.

Personal relationships and loyalties cannot be created by a few visits, but are developed by on-going communication and contacts, written and direct. Koreans relate much more closely to those with whom they are in frequent contact than to others. Appropriately, a Korean proverb says the distant cousin is less important than the nearby stranger. In order to benefit from the development of personal relationships, a foreigner has to demonstrate he or she is prepared to learn and respect Korean systems, customs and habits. In approaching Koreans, human understanding should be demonstrated and a foreign visitor should be prepared to be humble - as Koreans usually are.

One should appreciate that, in the Korean business culture, businessmen rarely give a quick and outright "yes" or "no". Another Korean proverb says: "no tree can stand ten strokes". The implication is that persistent requests and appeals may change a "no" to a "yes". This also underlines the necessity of lengthy, persistent, tenacious contacts. Business decisions are based on consensus in Korea, and the decision-making process includes a number of responsibility units. Hence, a business decision takes longer than in Canada, as a larger number of

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[3] This was learned from a number of officials of trading companies and an official at the Australian Embassy in Korea during interviews conducted by the author.

officials are involved. Consequently, a larger number of personal contacts are required to identify the decision makers. Considerable patience is often required in arranging meetings with these individuals.

*4. Capitalizing on Local Korean Expatriates*

In establishing personal relationships, in understanding market opportunities, and in penetrating the Korean market, local Korean expatriates can make a valuable contribution. Korean expatriates in Canada can help exporters learn about Korea's social and business culture, and can perhaps provide more in-depth information about specific matters than is available in written form in English.

Korean expatriates may also be familiar with business organizations, politics, and the political process in Korea. They may have personal friends in business organizations or in government agencies who can help establish personal connections. Through friends or friends of friends, expatriates in Canada can certainly facilitate the marketing process.[4]

*5. Establishment of a "Joint Resources Committee"*

The Korean government, through its Ministry of Energy and Resources, has established bilateral joint resource committees with five countries (Indonesia, Australia, Columbia, Peru and the Philippines).[5] These committees, which include deputy ministers of the countries' relevant

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[4] It appears that Americans have appreciated the benefits of local expatriates in their Korean export drive. Numerous U.S. companies maintain offices in Korea. In the area of agricultural products, for example, Continental Grain, the American Soybean Association, the U.S. Corn Producers Association, and the U.S. Feed Grain Council maintain permanent offices in Korea. The main function of those officials in charge of Korean offices is to maintain continous contacts with Koreans. Some of these firms have employed Koreans educated in the USA, capitalizing on their Korean backgrounds and their personal connections.

[5] Ministry of Energy and Resources, "Overseas Resources Development Projects", (Seoul, Korea: Ministry of Energy and Resources, 1985), an unpublished internal document.

departments, meet annually at alternating locations. Valuable information related to the resource trade is exchanged at these meetings; issues discussed include Korea's resource requirements, resource supply prospects of producer countries, resource investment prospects, and administration of resource policies. These meetings also offer opportunities for senior government officials to engage in resource diplomacy activities.

Strangely, Canada has not yet established a bilateral resources consultative committee with Korea. In view of the fact that the Korean government plays a critical role in mineral trade and overseas resource development, and that it exerts significant influence on procurement procedures, such a committee could provide a valuable service. This is particularly so for Canada, because Canadian mineral policies, issues of foreign investment in minerals, and federal-provincial relations with regard to minerals, are not well understood by many influential Koreans. At present, there is no official channel through which Canada can engage regularly in official dialogues regarding bilateral mineral trade. How can Canadian government officials and business groups develop personal relationships with influential government officials in Korea without ongoing contacts? Canada urgently requires the establishment of a bilateral resources consultative committee with Korea.[6]

### 6. *Judicious Application of Diplomatic Pressure*

The Korean government exerts pervasive influence not only on Korea's overall mineral procurement strategy, but also on the actual purchase of individual minerals. The Korean customers of coal and uranium are mainly government-owned corporations, and even potash procurement is under government guidance and control through its purchase-distribution system. It follows that the Canadian government should use resource diplomacy; prominent politicians should travel to Korea and judiciously apply diplomatic pressure on the Korean government and its

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[6] According to a senior official of the Korea Ministry of of Energy and Resources who has been involved in establishing those committees with other countries and participated in the meetings, the committees are very useful in promoting an understanding of overseas minerals. Further he believes Canada has been reluctant to set up such a committee due to conflicting federal-provincial opinions.

agencies to redress the expanding imbalance in bilateral trade. A Canadian protectionist policy would be less effective in that respect than pressure on Korea to expand its imports of Canadian minerals. Canada should demonstrate the mutual benefits of matching concessions in the manufactured goods trade with those in the mineral trade.

In exerting such diplomatic pressure, visits by prominent Canadian politicians are valuable. However, their visits would likely be of little avail if not followed by continuing pressure from senior government officials and business groups directed at their Korean counterparts. After all, it is the bureaucrats and business groups who set up purchase contracts. To this end, a joint Canada-Korea consultative forum and resource committee as proposed above would prove valuable.

*7. Strengthening Korea's Confidence in Canadian Minerals*

The growth of the mineral trade is a function of the mutual confidence of each side in the other as a reliable supplier and as a secure market. On the Canadian side, ad hoc policy measures such as unilateral embargos on mineral exports and moratoriums on mineral exploration should be avoided. These practices adversely affect Canada's credibility as a reliable source of mineral supply. Volatility in Canadian resource policy should be minimized through federal-provincial cooperation to stabilize the mining tax regime and to maintain consistent environmental regulations. Ex post changes in tax regimes to capture economic rent from minerals, after the rent is realized, would undermine Korea's confidence in Canada as a reliable place to invest.

*8. Fair Treatment of Korean Customers*

The historical fact that Korea was a colony of Japan, together with Korea's current zeal to emulate Japan, prompt sensitivity in Korean customers concerning whether or not they are receiving treatment similar to that accorded their Japanese counterparts in commercial deals and at negotiating tables. It appears that some Korean businessmen resent Canadians because, in their view, Canadians pay less attention to them than to Japanese counterparts. This perception probably developed during the mid-1970s when the international minerals market was a seller's market. If this concern has substance, Canadian suppliers would

be wise to become more respectful of the Korean market and its representatives. Although the Korean market for steam coal, coking coal and uranium was insignificant compared to the Japanese market during the 1970s, the Korean market is expected to increase to be about one-sixth to one-quarter of the Japanese market by 2001. The Korean market will no longer be one that Canada can afford to downplay or ignore.

*9. Encouraging Korean Investment in Canadian Minerals*

It was noted that Korea intends to meet 30 percent of its coal and uranium requirements through overseas develop-for-import projects by 2001. Canada should therefore make a major effort to induce Korean firms to participate in joint ventures with Canadian companies, particularly in coal and uranium. At the same time, the Canadian government should encourage more Canadian mining companies to integrate forward into the Korean market, which would help to ensure Korea's commitment to Canadian sources of supply. This type of manoeuvre is expedient for Canada because it is not based on price competitiveness, for which Canada is often at a disadvantage with its main competitor, Australia. Furthermore, a Korean market secured by investment in Canadian minerals would be relatively stable because, in order to safeguard their investment, Korean investors might have to tolerate uneconomic operations even in periods of weak market conditions.

In order to induce Korean investment in Canadian minerals, Canada should first develop close personal contacts with officials of the Ministry of Energy and Resources, the Korea Mining Promotion Corporation, KEPCO, POSCO, the Export Import Bank of Korea, and general trading companies interested and experienced in overseas resource development projects. Canada should sponsor, perhaps through a consultative forum, conferences with the above mentioned organizations concerning mineral investment opportunities and the Canadian investment climate.

These conferences should include information about the Investment Canada Act, tax regulations and federal-provincial relations. They should place special emphasis on the advantages of investing in Canadian minerals, which include a highly developed social and economic infrastructure, managerial and technical expertise, a high level of productivity in mining, a high degree of security of land tenure, a competitive tax system, a high degree of economic and political stability,

a broad diversity of minerals in competitive grades, and relatively stable labour relations.[7] Ultimately, investment opportunites in Canada will be exploited only when Canada offers a competitive rate of return.

In offering seminars to Korean delegates, Canada should seek the services of local expatriates familiar with the Canadian mineral sector. Their language advantage and ethnic affinity may make them more effective than others in convincing a Korean audience that Canada offers a favourable investment climate. Representatives of Korean companies together with senior government officials, should subsequently be invited to Canada for discussion with their Canadian counterparts.

If a consortium is being established, Canadian government involvement, perhaps in the form of equity participation, may be desirable, given that Korean businessmen tend to favour a government role in business operations. They regard government involvement as insurance against politically inspired interruptions. This is particularly so in the case of uranium development.[8]

*10. A Joint Venture Trading Company with a Korean General Trading Company*

Korea has been importing the minerals discussed here for some time, and the existence of long-standing buyer-seller relationships poses problems for market expansion. This is particularly so in a country like Korea where personal relationships play an important role in business. Furthermore, Canada is at a disadvantage with its main competitor (Australia) for most minerals in terms of price, so expansion into the Korean market by means of explicit price competition should be avoided. Although the Korean price elasticities of the minerals in question are low, they are seen as high by Canadian companies because of the existence of close substitutes from Australia. This indicates that a decrease in the

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7 Caragata, P.G., *National Resources and International Bargaining Power: Canada's Mineral Policy Options*, p. 120. A Canadian advantage over Australia that has been perceived by Korean businessmen is that Canadian labour relations are relatively stable.

8 According to a senior official of KEPCO, the involvement of the Saskatchewan Mining Development Corporation (SMDC) in the joint venture for uranium was well received by KEPCO.

Canadian price leads to a decline in revenue even if exports increase. Therefore, a market expansion strategy should emphasize vigorous and persistent market promotion activities based on non-price factors such as security of supply. In this regard, it should be recalled that, given market characteristics, Korean business culture, and different specifications of minerals, a competitive edge in terms of price does not necessarily secure the market.

Once Canada acknowledges that the Korean market represents an attractive opportunity and commits itself to increasing mineral exports, it has to determine the best mode of market expansion. The best approach appears to be one which relies heavily on the services of a Korean general trading company as an agent. This follows from the observation that occasional visits by salesmen or brokers from a mining company have not been well received by individual end-users.[9] The bureaucratic complexity of the Korean government and the subtlety of its business operations should also encourage Canadian firms to employ a Korean trade agent or a middleman. Furthermore, in many cases the volume of sales in Korea may not justify the full commitment of managerial and financial resources to the Korean market. In view of their various advantages in international trade, their influence on the government, and their dynamism and aggressiveness, Korean general trading companies appear to be the best agent.

The final selection of a trading company in Korea must be made carefully. The selection process should take into account the company's experience in importing resources and in overseas resource development projects, personal connections with the end-users and the government, and qualified staff. Whether or not the conglomerate to which a trading company belongs has end-users of minerals is also an important factor to consider. One should also make sure that the trading company is not working as an agent for Canadian competitors such as Australia.

Selecting and designating a trading company as a Korean agent appears to be a necessary, but not in itself a sufficient, condition for market expansion. Given the long-term and spasmodic nature of mineral contracts, no general trading company would set its heart on the inter-

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[9] In the past, certain Canadian coal companies have occasionally sent their own salesmen or Japanese brokers to Korea, who have then contacted general trading companies as well as end-users. This approach has not been well received by Korean companies, and should be avoided. That view was expressed by several business officials interviewed.

mediary role for the minerals of a company. A Canadian mining company might want to develop a joint venture trading company with a Korean general trading company. The purpose of such a joint venture trading company would be to capitalize on the comparative advantages of the Korean general trading company and those of Canadian mining companies, and to improve trade in minerals as well as non-minerals. Through such a joint venture, a Canadian mining company lacking the experience and the information network in international trade could export its minerals to Korea and third countries through the Korean partner. On the other hand, a Korean general trading company lacking managerial and technical skills in mining could participate, through the Canadian partner, in mineral development projects, not only in Canada but also in third countries.[10]

Korean general trading companies are experts in international countertrade and third nation trade. The Korean partner of the joint venture could export machinery and equipment, directly or indirectly, to Canadian mining companies, and in return it would import Canadian minerals to Korea and for third countries as well. Given the increasing trend towards countertrade, some linkage between exports and imports may well be required in order to expand Canadian mineral exports.[11]

Such a joint venture trading company may not be necessary for potash, because Canpotex is conducting its export trade with Korea in an efficient manner. And, Canpotex possesses a number of advantages over the Korean general trading companies in the international trade of potash. Nor would such a joint venture be necessary for uranium, because international trade in uranium is largely political in nature, and the scope of business on a commercial basis is unlikely to be large enough to warrant such a joint venture. The most appropriate commodity for a joint venture trading company is coal. It is also in coal that Canada has good potential for expansion.

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10 In March 1987, Samsung General Trading Company set up a joint venture trading company (Canada Trade Group Inc.) in Montreal with SNC Holding Canada Inc. and DGN Consulting Corp. both located in Montreal. *The Korea Times*, Toronto, March 18, 1987, p. 2. A senior official of a Korean general trading company expressed his interest in a joint venture trading company during an interview conducted by the author during the summer of 1986.

11 For the trend of countertrade see J. de Miramon, "Countertrade, a Modernized Barter System", *OECD Observer*, January 1982, p. 12.

Although a single coal mining company could arrange such a joint venture with a Korean trading company, it appears that a group of Canadian companies may be more appropriate. If one company alone were to set up a joint venture, it might face too many constraints and limitations. One company may not have enough business volume to attract a Korean trading company to such a joint venture, nor the necessary financial and human resources. Furthermore, engagement in countertrade with the Korean partner by one coal mining company alone would adversely affect the rest of the industry.[12] A joint venture by a group of companies would reduce such adverse effects.

A group of companies developing a joint venture with a Korean trading company should be somewhat similar in terms of locations, cost structure and output. Once a group of companies forms a joint venture, it must set up, even if only informally, an export association or export consortium.[13] That is because, when the joint venture bargains with a Korean customer, it should do so collectively. Although an export association provides various benefits in the total marketing function such as economies of scale, it is difficult to expect that such an association would be established across the whole industry, due to lack of cohesiveness among Canadian producers.[14] Hence, only a group of similar companies would be able to set up such an export association and joint venture.

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[12] For adverse effects of countertrade on third parties, see J. I. Walsh, "The Effect on Third Countries of Mandated Countertrade". *Journal of World Trade Law*, vol. 19 (6), 1986, pp. 592-603.

[13] Export associations are sanctioned both in Canada and the United States. Some 36 export associations, called Webb-Pomerene associations, are currently in operation in the United States. They are exempt from anti-trust action in their export activities as they set prices and allocate foreign markets. These associations are formed for highly homogeneous products such as agricultural commodities and minerals. For U.S. export associations, see Vern Terpstra, *International Marketing*, 3rd ed., (New York: CBS College Publishing, 1983), pp. 320-328, and Warren J. Keegan, *Multinational Marketing Management*, 3rd ed., (Englewood Cliff: Prentice-Hall, 1984), pp. 511-516. For the Canadian case, see D.L. Anderson, *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*, p. 216.

[14] Difficulties that would arise in setting up an export association are explained well by D.L. Anderson, *An Analysis of Japanese Coking Coal Procurement Policies: The Canadian and Australian Experience*, pp. 216-220.

Discussions regarding organizational structure, share of investment, management, or specific projects of the joint venture trading company are beyond the scope of this study. However, it should be noted that this kind of bold, innovative approach may be needed to penetrate existing buyer-seller relationships. Being the first to develop such a joint venture would entail risks, but might also yield significant benefits, as demonstrated by the Canpotex experience in Korea.

### *11. An Export Association*

Although the probability that the Canadian coal industry will establish an export association is admittedly slim in the foreseeable future, it may still be worthwhile examining its potential benefits in the hope that further investigation and interest will be generated. Marketing activities for export trade are fragmented into a multitude of separate functions, including market research, contacts with foreign customers, negotiations, arrangements of inland and ocean transportation, on-shore storage and financial arrangements. An individual company generally lacks the financial leverage and human resources to carry out all these functions on a continuing basis. One of the main purposes of an export association is to gain efficiency in each of those activities and to provide economies of scale in the total marketing function by consolidating the activities.[15] In addition, the association may prevent price-cutting competition among domestic producers. Since competition among mineral producers has been fostered by strategies or even by "unfair" bargaining tactics adopted by foreign customers, some form of impediment to extreme price competition among domestic producers is desirable.

An export association could also provide benefits to foreign customers. It would enhance its security of supply, not only because larger volumes of minerals would be available from one source, but also because customers' perception of supply reliability is higher with an association. Dealing with one supplier also provides convenience and savings in mineral procurement costs for foreign customers.[16] Of course, the

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[15] It was pointed out earlier that Canpotex achieves significant economies of scale in transportation, distribution and market development. See R. Reid, "The Economics of Potash", p. 7.

[16] Certainly this was the case with regard to Canpotex in Korea, as was pointed

viability of such an association would depend partly on whether Canada already has market power in the minerals in question. If Canada is the major producer of a mineral, foreign customers might regard a Canadian export association as incompatible with their resource diversification objective and see it as a threat to a "competitive" market atmosphere. Foreign customers might then cut off their orders for Canadian minerals. This is an unlikely scenario for coal given that Canada has virtually no market power in this area. Turning away from Canadian sources would work at cross-purposes with Korea's resource diversification objective. If Korea cut off the Canadian supply and relied fully on Australian coal, Australian producers would probably proceed to organize their own association based on their market power. Furthermore, since many Pacific Rim countries (including Japan and Korea) have trade surpluses with Canada, it would be diplomatically difficult for them to turn away from Canadian minerals.

Nevertheless, there is a real danger that, in the short run, Japanese customers in particular would cut off their orders for Canadian minerals and obtain alternative supplies from Australia or the USA, because the proportion of Canadian coal in Japan's total imports is quite low. At the same time, Japan's share of total Canadian exports of minerals is extremely high. Thus, Japan can do without Canada much more easily than Canada can do without Japan. A pragmatic approach for Canada would involve the establishment of an export association specifically for the Eastern Asian market excluding Japan, similar to Canpotex which conducts trade with the entire offshore potash market. The prevailing bargaining relationship with the Eastern Asia market (excluding Japan) with respect to coal favours Canada, so reaction by that market to the creation of a Canadian export association should be minimal. In summary, the export association appears to be an approach worth pursuing.

The greatest impediments to the establishment of an export association are domestic in nature, namely conflicting interests and lack of trust among domestic producers. Hence, if and when Canada recognizes that the benefits of an association exceed its costs, government may have to put some pressure on the industry to establish such an association.

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out in interviews by senior officials of companies dealing with potash. A similar opinion was expressed by an official of the Korean agent of Cansulex (the Canadian marketing agency for sulphur).

*12. Market Research by the Canadian Coal Association or the Mining Association of Canada*

Even if all the companies in an industry support the concept of an export association, its establishment could take several years, and Canada cannot wait that long. One of the major benefits provided by an export association is efficient market research. As an interim alternative, the Canadian Coal Association (or the Mining Association of Canada, dealing with Canadian minerals in general) could establish a market research unit in Korea. This unit would undertake marketing research and provide information on demand forecasts, changes in personnel in relevant organizations, negotiating tactics, and competitors' selling tactics. The unit would continually develop its contacts with decision makers at all levels. Through the research unit, the industry could establish its presence in Korea. Since market presence is a vital component of successful market development program, the research unit would also help to bolster the Canadian profile in Korea.[17]

*13. Vigilance over Competitors*

In their attempt to increase mineral exports to Korea, Canadian companies and the Canadian government should recognize the presence of the USA, Australia, and South Africa as major competitors. The Korean market has become as competitive as any in the world. When the competition is fierce, understanding it is vital - yet the most difficult aspect of market research is analysis of the competition. This is particularly so in the Korean market where personal relationships are a key factor in business, because personal relationships are impalpable and are handled differently by different competitors. Canadian companies should also take into account market promotion activities undertaken by their competitors. As stressed repeatedly, market promotion activities are critically important for success in mineral exports because international

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[17] For the importance of the presence in Asian markets, see Ian Robertson, "Canada and Pacific Trade: The Marketing Challenge", *Issues* (by Asia Pacific Foundation of Canada), vol. 2, no. 1, Spring 1987, p. 6.

mineral trade is determined not only by price but also by variables such as personal relationships, mineral quality and logistics.

Many potential Canadian exporters may attribute U.S. success in Korea to the strong political, military and economic ties developed through generous military and economic aid. They may ascribe Australian success to a competitive price edge; however, such observations have little merit. In fact, American and Australian success in Korea is largely attributable to personal relations with Korean partners or associates and to export promotion activities.[18] Australia has been outperforming Canada in the Korean market; since 1980, Korea's annual imports from Australia have been about twice as large as those from Canada. Australia's annual trade surpluses with Korea were about US$600 million for the 1980-85 period, while Canada has recorded substantial annual deficits starting from 1983.[19] It appears that Australia has appreciated, better than Canada, the importance of personal relationships in doing business with Korea, and has better understood how to develop such relationships.

Australia has also been undertaking market promotion activities. The Australian government has long assisted trade promotion activities in Korea by sending Australian business groups and members of the Chamber of Commerce to Korea. Trade talks between the two countries at the ministerial level have been going on regularly for many years. Australian products are advertised in Korean newspapers. Furthermore, pamphlets and fliers are distributed in Korea on a regular basis. Such activities have been successful in establishing cordial personal relationships and in giving Australian products visibility in Korea.[20]

Bilateral business relations in the resource area are being intensified between Australia and Korea. In 1980, Australia and Korea set up a Joint Resources Committee, and annual meetings have been held

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18 This is an opinion of an official at the Australian Embassy in Korea expressed during an interview conducted by the author.

19 The Australia/Korea trade data are obtained from Office of Customs Administration, Korea, *Statistical Yearbook of Foreign Trade*, 1980 to 1985 issues. For the Canadian data, see table 3.1.

20 This was learned from a counselor of the Australian Embassy in Korea during an interview conducted by the author in the summer of 1983.

alternately in Korea and Australia, with each country sending representatives from government and industry.

Perhaps the most remarkable difference between Australian and Canadian efforts in Korea is seen in Australia's exchange with Korea of academicians and in the in-depth academic research they undertake. The Korea International Economic Institute (the predecessor of the Korea Institute for Industrial Economics and Technology) and the Australian National University jointly undertook a major study to analyze the complementarity of the two economies and to devise strategies to capitalize on opportunities.[21] Based on this research, two seminars (one in each country) involving senior civil servants and academicians were held. Given the considerable influence of academics on the national policy-making process in Korea, this research may have contributed to the enhancement of Australian-Korean economic relations. There has been nothing comparable between Canada and Korea. Australian scholars have also undertaken in-depth academic research projects on the Korean agricultural industry.[22] As indicated in chapter 5, South Africa is also undertaking much more extensive market promotion activities than Canada.

If Canadian companies want to expand their share of the Korean market in the long-run, they should establish themselves in that market and maintain a presence. One way of maintaining that presence is to appoint local agents for that purpose. Unfortunately, it appears that Canadian mining companies do not use local agents as successfully as do their Australian counterparts.[23] Another way of maintaining a presence - perhaps more efficient but definitely more expensive - is to establish

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[21] W.S. Park, *Korea's Participation in Australian Energy Development*, (Seoul, Korea: Korea International Economic Institute, 1981). This was part of the joint research project undertaken by the two institutes.

[22] Johns, M., "The Beef Market in South Korea: Development in Supply and Demand and the Implications of Government Policies", in K. Anderson and A. George, (eds.), *Australia Agriculture and Newly Industrializing Asia: Issues for Research*, (Canberra, Australia: Australia-Japan Research Centre, 1980), and Anderson, Kym, "Korea Agricultural Protection in Historical Perspective", *Journal of Economic Development*, vol. 7 (2), 1982, pp. 115-27.

[23] This opinion was expressed by an official at the Australian Embassy in Korea during an interview conducted by the author in the summer of 1986.

branches or to have Canadian trading companies in the Korean market. Canada also fares worse than Australia in this regard. As of 1985, no Canadian mining or general trading company had opened an office in Korea, while there were two Australian trading companies and one branch of an Australian mining company in Korea.[24]

### *14. The Importance of Customs and Habits*

In order to expedite the development of personal relationships with Korean customers, Canadians have to demonstrate that they are prepared to learn and respect Korean customs and habits. They may seem to a Canadian to be irrelevant in a discussion of business practices and marketing strategies, but they are in fact important factors in determining the success or failure of a trade negotiation in Korea. An understanding of and conformity to these customs and habits will show sincerity and help create valuable affinities, friendships, and business relationships.

*Token gift*: Westerners have seen that when people from Asian Pacific countries visit North America, they never fail to bring token gifts - usually generous - for the western hosts. That is part of their culture; however, Westerners seldom offer such gifts. Japanese businessmen are noted for their generosity, even when they visit other Asian markets.

*Friends can help*: if a Canadian businessman has a Korean friend in Korea, having the friend accompany him on a visit to an organization may prove beneficial. The Korean friend might know someone in the organization, facilitating the establishment of a congenial business relationship.

*Never make the first visit alone*: when a representative or salesman of a company with an established business relationship with Korea, visits the Korean market for the first time, he she should be accompanied by a representative who has visited Korea before.

*A subtle way of invitation*: in Korea, if a person asks another to share lunch or dinner together, the former has offered an invitation and must be prepared to pay the bill. If a Western visitor cannot pay the total bill, he should not suggest to his Korean customer that they have lunch together. Failure to offer to pay would embarrass the Korean customer.

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[24] The Federation of Korean Industries, *Korean Economic Yearbook, 1985*, (Seoul, Korea: Federation of Korean Industries, 1985), pp. 883-885.

If one visits Korea to seek out business, one should be prepared to treat contacts to lunch or dinner.

*Try to learn the language*: any foreign language requires considerable effort to learn. One would seek to learn the Korean language not for the purpose of conducting business transactions, but to show goodwill and to develop friendships. For that, one need not master the language; a few words or sentences of greeting may be sufficient to make a favourable impression. For the same reason, try to use chopsticks when eating with Koreans.

*Etiquette*: the Korean handshake is accompanied by a bow, particularly when meeting senior persons. It is important to show respect to older people. When you meet friends, express your interest in their families, asking about them and giving your regards. Even in writing business letters to your Korean friends, include a few lines on this subject.

## Concluding Remarks

The Korean economy is likely to continue to grow, creating an expanding market for Canadian minerals including coal, uranium and potash. This conclusion is probably applicable to other emerging industrial powers in the Eastern Asia Pacific Rim region. How can Canada explore the Pacific-Rim market and expand its market share? That is the challenge facing the Canadian mineral sector today and the essence of the challenge is marketing. When the international mineral market was a seller's market, marketing efforts were not important. However, since the market has changed to be a buyer's market, Canadians must undertake marketing programs; otherwise, the opportunities of an expanding Pacific-Rim market will slip away.

To meet this challenge, the foremost requirement is a serious long-term commitment of time and money. It should be recognized that the characteristics of the Pacific Rim market, its culture, and the political and business systems in which the customers operate, are distinctively different from those of their Canadian counterparts. Canadians should be prepared to learn the Korean *modus operandi* and to do business in the Korean way. This will require patience and tenacity.

The Canadian mineral industry has yet to develop a coordinated marketing strategy toward the Korean market, let alone the Pacific Rim market. Financially feasible marketing ideas and strategies are readily

available. Complacency with the status quo is unlikely to provide a solution to the industry's weaknesses. Canadians should re-examine current practices in the export of Canadian minerals to the Pacific Rim and Korean markets. We must assess and emulate what our successful competitors are doing, and formulate, with all our imagination and ingenuity, a coordinated marketing strategy.

## The Author

Yul Kwon was born in the Republic of Korea in 1936, and graduated from Seoul National University in 1962 with a Bachelor of Commerce degree. In 1968 he received a Masters of Arts (Public Finance) from McMaster University in Hamilton, Ontario, Canada. He remained at McMaster where he received a Ph.D. four years later. After working for Finance Canada, first as an economist in the Fiscal Policy Branch and later as a senior tax policy officer in the Tax Policy Branch, Dr. Kwon joined the Faculty of Administration at the University of Regina in 1975. He became a full professor in the Faculty of Administration in 1981. Dr. Kwon is now a Canadian citizen and resides in Regina with his wife and two children.

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